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THE UNIVERSITY CALENDAR

1899–1900

FIRST SEMESTER, 1899.

Sept. 14, Thursday.	Entrance examinations begin.
Sept. 18, 19, Monday and Tuesday.	Registration Days.
Sept. 20, Wednesday.	Instruction begins.
Nov. 6, Monday.	Latest date for Announcing Subjects for Theses.
Nov. 30, Thursday.	Thanksgiving Day.
Dec. 23, Saturday.	Holiday Recess begins.
Jan. 8, 1900, Monday.	Instruction resumed.
Feb. 2, Friday.	First Semester ends.

SECOND SEMESTER, 1899-1900

Feb. 5, Monday.	Registration Day.
Feb. 6, Tuesday.	Instruction begins.
Feb. 19, Monday.	Prize Debate.
May 16, 17, 18, Wednesday evening to Friday noon.	University High School Conference and High School Art Exhibit.
May 18, Friday.	Interscholastic Oratorical Contest.
May 19, Saturday.	Interscholastic Athletic Meet.
May 28, Monday.	Hazelton Prize Drill.
May 29, Tuesday.	Competitive Drill.
June 1, Friday.	Latest Day for Acceptance of Theses.
June 10, Sunday.	Baccalaureate Address.
June 11, Monday.	Class Day.

June 12, Tuesday. Alumni Day and Oratorical Contest.
June 13, Wednesday. Twenty-ninth Annual Commencement.
" 18 Monday Summer School begins
July 27 Friday " " ends

FIRST SEMESTER, 1900-1901

Sept. 13, Thursday. Entrance Examinations begin.
Sept. 17, 18, Monday and Tuesday. Registration Days.
Sept. 19, Wednesday. Instruction begins.
Nov. 5, Monday. Latest date for Announcing Subjects of Theses.
Nov. 29, Thursday. Thanksgiving Day.
Dec. 22, Saturday, Holiday Recess begins.
Jan. 7, 1901, Monday. Instruction resumed.
Feb. 1, Friday. First Semester ends.

1899

SEPTEMBER

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STATE LABORATORY OF NATURAL HISTORY

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AGRICULTURAL EXPERIMENT STATION

STATION STAFF

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UNIVERSITY OF ILLINOIS

LOCATION

The University of Illinois is situated in Champaign County, in the eastern central part of the state between the cities of Champaign and Urbana, within the corporate limits of the latter. It is one hundred and twenty-eight miles south of Chicago, at the junction of the Illinois Central, the Cleveland, Cincinnati, Chicago and St. Louis, and the Wabash railroads. The country around is a rich and prosperous agricultural region. The cities of Urbana and Champaign have a combined population of about 15,000.

HISTORY

In 1862 the national government donated to each state in the Union public land scrip in quantity equal to 30,000 acres for each senator and representative in congress, "for the endowment, support, and maintenance of at least one college, whose leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts * * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

On account of this grant the state pays the University, semi-annually, interest at the rate of five per cent. on about $470,000, and the University owns about 12,000 acres of unimproved land worth, approximately, $140,000.

To secure the location of the University several counties entered into competition by proposing to donate to its use specified sums of money, or their equivalent. Cham-

paign County offered a large brick building in the suburbs of Urbana, erected for a seminary and nearly completed, about 1,000 acres of land, and $100,000 in county bonds. To this the Illinois Central Railroad added $50,000 in freight. The General Assembly accepted this offer May 8, 1867.

The state has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property and assets is estimated at $1,600,000.

The institution was incorporated February 28, 1867, under the name of the Illinois Industrial University, and placed under the control of a Board of Trustees, constituted of the Governor, the Superintendent of Public Instruction and the President of the State Board of Agriculture, as *ex-officio* members, and twenty-eight citizens appointed by the Governor. The chief executive officer, usually called President, was styled Regent, and was made *ex officio* a member of the Board, and presiding officer both of the Board of Trustees and of the Faculty.

In 1873 the Board of Trustees was reorganized, the number of appointed members being reduced to nine and of *ex-officio* members to two—the Governor and the President of the State Board of Agriculture. In 1887 a law was passed making membership elective, at a general state election, and restoring the Superintendent of Public Instruction as an *ex-officio* member. There are, therefore, now three *ex-officio* members and nine by public suffrage. Since 1873 the President of the Board has been chosen by the members from among their own number for a term of one year.

The University was opened to students March 2, 1868, when there were present, beside the Regent, three professors and about fifty students. During the first term another instructor was added, and the number of students increased to 77—all young men.

During the first term instruction was given in algebra, geometry, physics, history, rhetoric, and Latin. Work on

the farm and gardens or about the buildings was at first compulsory for all students, but in March of the next year compulsory labor was discontinued, save when it was made to serve as a part of class instruction. A chemical laboratory was fitted up during the autumn of 1868. Botanical laboratory work began the following year. In January, 1870, a mechanical shop was fitted up with tools and machinery, and here was begun the *first shop instruction* given in any American university. During the summer of 1871 the present Wood Shops and Testing Laboratory was erected and equipped for students' shop work in both wood and iron.

By vote, March 9, 1870, the Trustees admitted women as students. During the year 1870-71 twenty-four availed themselves of the privilege. Since that time they have constituted from one-sixth to one-fifth of the total number of students.

By the original state law certificates showing the studies pursued and the attainments in each were given instead of the usual diplomas and degrees. The certificates proved unsatisfactory to the holders, and in 1877 the legislature gave the University authority to confer degrees.

In 1885 the legislature changed the name of the institution to the "University of Illinois."

During the same session of the legislature a bill was passed transferring the *State Laboratory of Natural History* from the Illinois State Normal University to the University of Illinois. This Laboratory was created by law for the purpose of making a natural history survey of the state, the results of which should be published in a series of bulletins and reports, and for the allied purpose of furnishing specimens illustrative of the flora and fauna of the state to the public schools and to the state museum. For these purposes direct appropriations are made by the legislature from session to session. A large amount of material has been collected and extended publications have been made in both the forms above mentioned.

By an act approved March 2, 1887, the national government appropriated $15,000 per annum to each state for the purpose of establishing and maintaining, in connection with the colleges founded upon the congressional act of 1862, agricultural experiment stations, "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." Under this provision the *Agricultural Experiment Station* for Illinois was placed under the direction of the Trustees of the University, and a part of the University farm, with buildings, was assigned for its use. At least one bulletin of results is published every three months, and the copies are gratuitously distributed over the state. Editions of 18,000 copies are now issued.

For the more complete endowment of the state institutions founded upon the act of 1862, the congress of the United States by a supplementary law passed in 1890, made further appropriations. Under this enactment each such college or university received the first year $15,000, the second $16,000, and thereafter was to receive $1,000 per annum additional to the amount of the preceding year, until the amount reached $25,000, which sum was to be paid yearly thereafter.

The Chicago College of Pharmacy, founded in 1859, became the *School of Pharmacy of the University of Illinois* May 1, 1896. Its rooms are at 465 State Street, Chicago.

At the meeting of the Board of Trustees of the University held Dec. 8, 1896, upon recommendation of President Draper, the Trustees voted to take steps looking to the organization of a law school. Appropriations were made for salaries, for the purchase of books, and for incidental expenses. Pursuant to this action of the Board of Trustees, the *School of Law* was organized during the following spring and summer, and was opened Sept. 13, 1897. The course as originally planned covered two years, conforming

to the existing requirements for admission to the bar in Illinois. The supreme court of the state, however, announced in November following rules covering examinations for admission to the bar which made three years of study necessary, and the course of study in the Law School was immediately rearranged on that basis.

Negotiations looking to the affiliation of the College of Physicians and Surgeons, of Chicago, with the University, which had been going on for several years, were concluded pursuant to action taken by the Board of Trustees upon definite propositions submitted by the College of Physicians and Surgeons to the Board at its meeting of March 9, 1897. According to the agreement made, the College of Physicians and Surgeons became on April 21, 1897, the *School of Mediicine of the University of Illinois.* The School is located at 813 W. Harrison Street, Chicago.

At the meeting of the Board of Trustees held April 22, 1897, the matter of the appointment of a librarian was considered by the Board and referred to a committee. This action of the Board was taken with the view of bringing to the University the *School of Library Economy,* which had been established in 1893 at the Armour Institute of Technology, in Chicago, and of securing the Director of that school for librarian of the University library. These plans were carried out and the *State Library School* was opened at the University in September, 1897.

BUILDINGS AND GROUNDS

The land occupied by the University and its several departments embraces about 210 acres.

The Chemical Laboratory is a building 75 by 120 feet, and two stories high, with basement. It contains general laboratories for students, instructors' laboratories, lecture rooms, store rooms, scale rooms, and various apartments for special purposes.

Engineering Hall has a frontage of 200 feet, a depth of 76 feet on the wings and 138 feet in the center. The first

story contains the laboratories of the department of physics, the drafting seminary, and one of the recitation rooms of the department of electrical engineering, and the masonry laboratories and instrument rooms of the department of civil engineering. The second story contains the lecture room and the preparation rooms of the department of physics, and the recitation and drawing rooms, cabinets, and studies of the departments of civil and municipal engineering, and the main office of the department of electrical engineering. The third story contains the elementary laboratory of the department of physics, the drawing rooms, lecture rooms, cabinets, and studies of the mechanical departments, as well as the library, the office, and the faculty parlor. The fourth story is devoted to the department of architecture, and contains drawing and lecture rooms, cabinets, a photo studio, and a blue-print laboratory.

The Wood Shops and Testing Laboratory is two stories high, 126 feet in length, and 88 feet in width, and contains the laboratory of applied mechanics, the hydraulic laboratory, and the wood shop on the first floor. The second floor is occupied by the *Men's Gymnasium.*

The Metal Shops is a one-story brick building, 50 by 250 feet. It contains a lecture room, two office rooms, a machine shop, a foundry, and a forge shop. The machine shop is 48 by 140 feet. Power is supplied by a 20 H. P. electric motor. A three-ton traveling crane of 12 foot span covers the center of the floor for the entire length, extending over a covered driveway between the machine shop and foundry.

The Mechanical and Electrical Engineering Laboratory is a pressed brick building, two stories high, 100 feet long and 50 feet wide, with a one-story wing 90 feet long and 50 feet wide. There is also a basement under the main part, containing some special testing rooms, store rooms, and the toilet and wash rooms.

The Central Heating Station is a brick building, 55 by 120 feet. It contains the apparatus used for heating the buildings on the campus. An annex contains the pump

room and the stock room. The pipes of the heating system and the wires for power and light, are carried from the Central Heating Station to the several buildings through brick tunnels 6½ feet high by 6 feet wide. The length of tunnel thus far constructed is 1,800 feet.

Military Hall, 100 by 150 feet, in one grand hall, gives ample space for company and battalion maneuvers and for large audiences upon special occasions.

Natural History Hall is 134 by 94 feet, with basement, two main stories, and an attic. It is occupied by the departments of botany, zoölogy, physiology, mineralogy, and geology, for each of which there are laboratories, lecture rooms, and offices; it also contains the office and equipments of the State Laboratory of Natural History, and of the State Entomologist, as well as the office, library, and chemical laboratory of the Agricultural Experiment Station. There are six laboratory rooms on each of the main floors—sufficient altogether to accommodate two hundred students, besides offering abundant facilities for the private work of the instructors.

The Astronomical Observatory is in the form of the letter T, the stem of which extends toward the south. The equatorial room, surmounted by the dome, is at the intersection of the stem and bar of the T. Besides the equatorial room the Observatory contains four transit rooms, a clock room, a recitation room, a study, and dark rooms for photographic purposes.

University Hall occupies three sides of a quadrangle, measuring 214 feet in front and 122 feet upon the wings. It is devoted almost exclusively to class rooms.

The Library Building is 167 by 113 feet, with a tower 132 feet high. The main floor contains the reference room, the reading room, the conversation room, the Library School lecture room, and the delivery room, which opens into the second story of the book-stack. The second floor contains the Library School class room, four seminary rooms, and the administrative offices of the University. The basement con-

tains well lighted rooms, which are at present used for various purposes. The book-stack is a rear wing to the building, separated from the rest of it by a fireproof wall. The stack will eventually contain five stories, and will accommodate 150,000 volumes. At present but three stories are fitted with shelving.

There are, in addition to these buildings, a veterinary hall, four dwellings, three large barns, and a greenhouse.

THE GYMNASIUMS

The Men's Gymnasium is equipped with the latest appliances. There is an unobstructed floor space of 61 by 121 feet, properly lighted, heated, and ventilated. The building contains shower baths, needle bath, tub bath, lavatories, team rooms, lecture room, examination room, director's offices, and locker rooms. The gymnasium is open from 9 a. m. to 6 p. m., and from 7 to 9 p. m. The adjoining Illinois Field, 450 by 700 feet, containing a one-third-mile running and bicycle track, class and University foot-ball fields, and baseball diamond, serves well for all games, and upon it take place all the intercollegiate contests.

The Women's Gymnasium occupies very attractive quarters in Natural History Hall, and is fully equipped. The pastime grounds near by, in use through the year when the weather permits, have a sixteen-lap running track, eight tennis courts, two basket ball fields, and space for handball, hurdling, and other desirable amusements. Under suitable restrictions, at certain hours, the rooms are open for exercise to those who are not enrolled in the classes.

LABORATORIES

SCIENCE LABORATORIES *

The *botanical, geological, physiological, and zoölogical laboratories* are in Natural History Hall.

The *chemical laboratory* occupies the building of the same name, already described.

*For a more detailed account of these laboratories see under the appropriate College.

The *physical laboratory* is in Engineering Hall. It is provided with piers, a constant temperature room, and other conveniences for measurement work.

The *psychological laboratory,* in Natural History Hall, is well provided with apparatus of many different kinds for use in experimental study, research, and instruction.

ENGINEERING LABORATORIES

The *cement laboratory* of the department of civil engineering occupies rooms in Engineering Hall, and is provided with slate tables, testing machines, molding machines, sieves, etc., and sample barrels of hydraulic cement, varieties of sand, and other necessary materials.

The *electrical engineering laboratory* occupies space on three floors of the Mechanical and Electrical Engineering Laboratory.

The *mechanical engineering laboratory* occupies the rear wing of the Mechanical and Electrical Engineering Laboratory.

The *laboratory of applied mechanics* is located in the Wood Shops and Testing Laboratory.

SPECIAL LABORATORIES FOR RESEARCH

The *laboratory of the Agricultural Experiment Station* occupies a part of the basement of Natural History Hall.

The laboratory rooms of the *State Laboratory of Natural History* are in Natural History Hall.

A *Biological Experiment Station* has been established by the University on the Illinois River at Havana, Illinois, and equipped for field and experimental work in aquatic biology. It has its separate staff, but is open to students of the University at all times, on application, and to special students not otherwise connected with the University during the summer months.

A laboratory for *sanitary water analysis* has been equipped with all necessary appliances, and chemical investigation of the water supplies of the state is carried on.

COLLECTIONS*

AGRICULTURAL

At large room in University Hall is devoted to the exhibition of the products of the industrial arts, especially of agriculture. Prominent among the agricultural specimens exhibited is an excellent collection of the sub-species and varieties of Indian corn. There is also a collection of small grains and of grasses; a collection of fibers in various states of manufacture, and a large collection illustrating the forestry of Illinois, Florida, and California. The exhibits made by the University at the Centennial and at the Cotton Exposition at New Orleans find a permanent abode here; large additions have also been made of materials received from the Columbian Exposition of 1893.

BOTANICAL

The herbarium contains nearly all the species of flowering plants indigenous to Illinois, including a complete set of grasses and sedges. The flora of North America is fairly well represented, and a considerable collection of foreign species has been made. A collection of fungi includes a full set of those most injurious to other plants, causing rusts, smuts, molds, etc. A collection of wood specimens from two hundred species of North American trees well illustrates the varieties of native wood.

Plaster casts represent fruits of many of the leading varieties as well as interesting specimens of morphology, showing peculiarities of growth, effects of cross-fertilization, etc.

ENGINEERING

The following departments of the College of Engineering have made extensive and valuable collections, which will be found in rooms in Engineering Hall:

*For a more detailed account of the collections in the different departments, see the appropriate subject under each College.

ARCHITECTURE

A large number of specimens of stone, bricks, terra cotta, sanitary fixtures, casts of moldings and of ornament have been accumulated, together with some excellent specimens of industrial arts, models of structures, working drawings of important buildings, 2,500 lantern slides, 20,000 plates and photographs, and the most necessary books.

CIVIL ENGINEERING

The civil engineering department has a large room containing samples of iron, steel, wood, brick, and stone; materials for roads and pavements; models of arches and trusses, one of the latter being full-sized details of an actual modern railroad bridge. The department also possesses a very large collection of photographs and blue-print working drawings of bridges, metal skeleton buildings, masonry structures, and standard railroad construction.

ELECTRICAL ENGINEERING

The department has a large cabinet containing a collection of samples illustrating standard practice in the industrial applications of electricity. There is also a rapidly growing collection of lantern slides, photographs, blue-prints, drawings, pamphlets, and other engineering data.

MECHANICAL ENGINEERING

This department has among other things a partial set of Reuleaux models, together with models of valve gears, sections of steam pumps, injectors, valves, skeleton steam and water gauges, standard packings, steam-pipe coverings, and drop forgings. There are also fine examples of castings, perforated metal, defective boiler plates, and sets of drills, with numerous samples of oil, iron, and steel. A large number of working drawings from leading firms and from the United States Navy Department forms a valuable addition to the above collections.

GEOLOGICAL

Lithology is represented by type collections of rocks (2,900 specimens), arranged to illustrate Rosenbusch, from Voigt and Hochgesang, Dr. L. Eger, and A. Kranz; a type collection from Ward; a large number of ornamental building stones, and a stratigraphic collection to illustrate Illinois geology.

The *mineralogical* collection is especially rich in rock-forming minerals, ores, and materials of economic value. It contains over 7,000 specimens carefully selected to meet the wants of the student.

The *paleontological* collection (43,400 specimens) contains representative fossils from the entire geologic series. It embraces the private collections of Dr. A. H. Worthen, including 650 type specimens; Tyler McWhorter; Rev. Mr. Hertzer; the Ward collection of casts, and a considerable number of special collections representing the fauna and flora of particular groups.

ZOÖLOGICAL

The *zoölogical* collections have been specially selected and prepared to illustrate the courses of study in natural history, and to present a synoptical view of the zoölogy of the state.

The mounted mammals comprise an unusually large and instructive collection of the ruminants of our country, including male and female moose, elk, bison, deer, antelope, etc., and also several quadrumana, large carnivora and fur-bearing animals, numerous rodents, good representative marsupials, cetaceans, edentates, and monotremes. Fifty species of this class are represented by eighty specimens. All the orders, excepting the Proboscidea, are represented by mounted skeletons. There is also a series of dissections in alcohol, illustrating the comparative anatomy of the group.

The collection of mounted birds includes representatives of all the orders and families of North America, to-

gether with a number of characteristic tropical, Bornean, and New Zealand forms. The collection is practically complete for Illinois species. There is also a fine collection of the nests and eggs of Illinois birds. A series of several hundred unmounted skins is available for the practical study of species, and the internal anatomy is shown in alcoholic dissections and in mounted skeletons of all the orders.

The cold-blooded vertebrates are represented by a series of mounted skins of the larger species, both terrestrial and marine; mounted skeletons of typical representatives of the principal groups; alcoholic specimens, both entire and dissected, and casts. The alcoholics include series of the reptiles, amphibians, and fishes, the latter comprising about three hundred species. The dissections illustrate the internal anatomy of the principal groups. The casts represent about seventy-five species, nearly all fishes.

The Mollusca are illustrated by alcoholic specimens of all classes and orders, and dissections showing the internal anatomy of typical forms. There are several thousand shells belonging to seventeen hundred species. The collection of Illinois shells is fair but incomplete.

Of the Arthropoda the entomological cabinet contains about three thousand species (principally American), named, labeled, and systematically arranged. There is also a series of Crustacea, some dried, but mostly in alcohol, the latter including a number of dissections.

The lower invertebrates are represented by several hundred dried specimens and alcoholics, and by a large series of the famous Blaschka glass models.

The embryology of vertebrates and invertebrates is illustrated by a set of Ziegler wax models, and several series of slides, sections, and other preparations.

In addition to the above, the extensive collections of the State Laboratory of Natural History are available for illustrative purposes, as well as for original investigation by advanced students.

ART GALLERY

The University art gallery was the gift of citizens of Champaign and Urbana. It occupies a room in the basement of Library Building, and furnishes an excellent collection of models for students of art. In sculpture it embraces thirteen full-size casts of celebrated statues, forty statues of reduced size and a large number of busts and bas-reliefs, making in all over four hundred pieces. It includes also hundreds of large autotypes, photographs, and fine engravings, representing many of the great masterpieces of painting of nearly all the modern schools, and a gallery of historical portraits, mostly large French lithographs, copied from the great national portrait galleries of France.

Other collections of special value to art students embrace a large number of casts of ornament from the Alhambra and other Spanish buildings, presented by the Spanish government; a set of casts from Germany, illustrating German renaissance ornament; a series of art works from the Columbian Exposition; large numbers of miscellaneous casts, models, prints, and drawings, such as are usually found in the best art schools, and a model in plaster and a complete set of drawings of a competitive design by Henry Lord Gay for a monument to be erected in Rome, commemorative of Victor Emanuel, first king of Italy.

LIBRARY

The *library* contains 40,000 volumes and 2,500 pamphlets. The reading room contains 378 periodicals. The library of the State Laboratory of Natural History and that of the Agricultural Experiment Station contain about 7,000 volumes and 16,000 pamphlets. Both these libraries are open to students of the University.

The library and the reading room are open every day, except Sunday, from 8 a. m. until 5 p. m., and from 7 p. m. until 9 p. m. on Mondays, Tuesdays, Wednesdays, and Thursdays.

ADMISSION

Applicants for admission to the freshman class must be at least sixteen years of age.

Entrance may be made at any time, provided the candidate is competent to take up the work of the classes then in progress; but it is better to begin upon the first collegiate day in September.

Admission to the freshman class of the University may be obtained in one of three ways: (a) by certificate from a fully accredited high school; (b) by examination; (c) by transfer of credits from some other college or university.

ADMISSION BY CERTIFICATE FROM ACCREDITED HIGH SCHOOLS

The University employs a high school visitor, whose business it is to inspect the high schools of the state. The University bears the expense of such inspection, but does not send the visitor to any school not already accredited until he receives from it a report with regard to the work it is doing which shows that its course of study is such in quantity and quality as to be worth the time and attention of the University. After inspecting a school the visitor reports upon it to the Faculty of the University, and upon approval the school is added to the list of accredited schools. Students coming to the University from an accredited school are excused from entrance examinations in those subjects which they have pursued there satisfactorily and which are accepted for admission to the University. The University accredits all work which is sufficiently well done. The schools in the list below are therefore not all accredited for the same amount and kind of work.

In all subjects required for admission to the University, other than those for which his school is accredited, the candidate for admission must pass an examination or take the work in the Preparatory School of the University.

Candidates for admission from accredited schools must file with the Registrar, upon entrance, a certificate of graduation and a certified list of the preparatory studies for which they received credit in the high school. Blanks for these certificates must be obtained from the Registrar in advance, and it is better to forward them to him for approval before registration days.

LIST OF ACCREDITED SCHOOLS

School	Superintendent	Principal
Aledo	J. P. Kuntz	F. N. Taylor
Alton	R. A. Haight	J. E. Turner
Amboy	F. W. Dunlap	F. W. Dunlap
Anna	A. L. Bliss	A. L. Bliss
Arcola	G. W. Smith	Nellie Wright
Atlanta	H. H. Edmunds	A. S. Patterson
Augusta	W. W. Wirt	S. D. Faris
Aurora (East)	C. M. Bardwell	W. C. Hazzard
Aurora (West)	A. V. Greenman	Katharine Reynolds
Austin	N. D. Gilbert	B. F. Buck
Batavia (East)	W. E. King	W. E. King
Batavia (West)	T. C. Frye	T. C. Frye
Beardstown	S. S. Beggs	H. J. Jockisch
Belleville	H. D. Updike	H. W. Brua
Belvidere (North)	Arthur J. Snyder	Flora Fellows
Belvidere (South)	Montgomery Moore	Mary Porteous
Bement	E. L. McDuffee	W. N. Tobey
Bloomington	E. M. VanPetten	E. L. Boyer
Blue Island	(Township High School)	J. E. Lemon
Burlington	C. E. Shelton	E. Boppe
Cairo	T. C. Clendenen	John Snyder
Camp Point	C. P. Beale	C. P. Beale
Canton	C. S. Aldrich	A. M. Henderson
Carlinville	E. H. Owen	Annie Otwell
Carollton	Clyde Slone	Lottie Weber

School	Superintendent	Principal
Carthage	W. K. Hill	Rose Kirkpatrick
Centralia	I. F. Mather	Ellen Sherman
Champaign	Joseph Carter	Lottie Switzer
Charleston	J. K. Stableton	Wm. Wallis
Chicago—		
Calumet	E. Benjamin Andrews	A. S. Hall
Englewood	"	J. E. Armstrong
English High and Manual Training	"	A. R. Robinson
Hyde Park	"	Chas. W. French
Jefferson	"	Chas. A. Cook
Lake	"	E. F. Stearns
Lake View	"	J. H. Norton
Marshall	"	L. J. Block
Medill	"	S. B. Sabin
North Division	"	O. S. Wescott
Northwest Division	"	F. P. Fisk
South Division	.	Jeremiah Slocum
South Chicago	"	C. I. Parker
West Division	"	G. M. Clayberg
Chicago Heights	G. A. Hawkins	F. W. Schacht
Chicago Manual Training	H. H. Belfield, Director.	
Chrisman	J. H. Gardener	J. H. Gardener
Clinton	E. B. Bentley	Bertha Wilcox
Clinton, Ia.	O. P. Bostwick	E. L. Mason
Cobden	J. H. Jenkins	J. H. Jenkins
Danville	J. E. Bryan	B. D. Billinghurst
Davenport, Ia.	J. B. Young	W. D. Wells
Decatur	E. A. Gastman	Frank Hamsher
Delavan	F. L. Calkins	Stella Hoghton
Dixon (North)	H. V. Baldwin	Lydia Williamson
Dixon (South)	Chas. W. Groves	B. F. Bullard
Dubuque, Ia.	F. T. Oldt	F. L. Smart
Dundee	C. H. Watt	Carrie Watson
DuQuoin	D. B. Rawlins	Chas. Knapp
Dwight	G. W. Horton	J. W. Lockhart
East St. Louis	John Richeson	J. E. Miller
Edwardsville	J. M. Parkinson	Walter F. Pike
Effingham	C. V. McReynolds	E. C. Finley

School	Superintendent	Principal
Elgin	M. A. Whitney	E. C. Peirce
Elmwood	L. E. Flanegin	Jeannette Munson
El Paso (West)	H. E. Waits	H. E. Waits
Evanston	(Township High School)	H. L. Boltwood
Evansville, Ind.	W. A. Hester	Robert Spear
Farmer City	C. C. Covey	James Raiburn
Farmington	H. L. Roberts	H. L. Roberts
Flora	Philo Stephenson	Amy Mullikin
Freeport	R. S. Page	S. E. Raines
Fulton	A. Ebersole	Mary Conrath
Galena	J. W. Cupples	O. E. Taylor
Galesburg	W. L. Steele	F. D. Thomson
Galva	F. U. White	Hedwig M. Maul
Geneseo	A. W. Hussey	F. H. Haller
Gibson City	R. G. Jones	H. W. Rudolph
Grand Prairie Seminary (Onarga)		F. C. Demarest
Greenfield	H. G. Russell	Mrs. H. G. Russell
Griggsville	H. G. McCairel	Nora Simmons
Harvard	J. S. Brazier	Jennie McCampbell
Harvey	(Township High School)	J. E. Cable
Henry	Wm. Calhoun	Emma Stone
Hillsboro	Josiah Bixler	Mattie Hunt
Hinsdale	J. M. Frost	Mary MacNair
Hoopeston	S. A. D. Harry	F. V. Clements
Jacksonville	J. W. Henninger	H. S. Weston
Jerseyville	J. Pike	E. B. Shafer
Joliet	Kate Henderson	J. Stanley Brown
Kankakee	F. N. Tracy	C. E. Crosby
Keokuk, Iowa	O. W. Meyer	George E. Marshall
Kewanee	A. C. Butler	Horace Phillips
Lacon	Frank Wescott	Margery Morrison
La Grange	(Township High School)	E. G. Cooley
Lanark	E. S. Hady	Louise C. Winner
La Salle	(Township High School)	Stratton D. Brooks
Le Roy	B. C. Moore	Bertha Rutledge
Lewistown	B. E. Nelson	Georgia T. First
Lexington	Jesse L. Smith	Emma Glossop
Lincoln	F. M. Richardson	Marion Lyons
Litchfield	J. E. Wooters	R. C. Shelenbarger
Lockport	J. E. Hooton	E. L. Tilden

School	Superintendent	Principal
Macomb	R. C. Rennick	R. C. Rennick
Marengo	A. M. McDermott	Charles Shafer
Marseilles	M. A. Kline	F. M. Kline
Mason City	J. R. Sparks	E. A. Naylor
Mattoon	B. F. Armitage	S. F. Smyser
Maywood	J. Porter Adams	C. W. Drake
Mendota (East)	W. R. Foster	W. R. Foster
Mendota (West)	H. H. Robinson	H. H. Robinson
Metropolis	Edward Longbons	A. S. Boucher
Moline	W. J. Cox	A. R. Crittenden
Monmouth	J. C. Burns	E. Sturtevant
Morrison	M. M. Warner	P. F. Burtch
Mound City	Joel Bowlby	Mary Roberson
Mount Carmel	D. W. Gamble	Kate Marsh
Mount Carroll	J. M. McCallie	Ida M. Giggs
Murphysboro	C. W. Parkinson	E. H. Rogers
Nashville	Albert G. Owen	Albert G. Owen
Newton	E. B. Brooks	Electa Ranson
Normal	E. A. Fritter	T. M. Birney
Oak Park	W. H. Hatch	C. J. Hanna
Olney	F. W. Wood	G. D. Wham
Oregon	W. J. Sutherland	Addie Steele
Ottawa	(Township High School)	J. O. Leslie
Paris	J. D. Shoop	W. L. Goble
Paxton	O. J. Bainum	J. E. McKown
Pekin	O. A. Schotts	A. D. Chapman
Peoria	N. C. Dougherty	A. W. Beasley
Pittsfield	W. R. Hatfield	Bertha Cann
Polo	S. M. Abbott	Julia M. Gay
Pontiac	(Township High School)	J. E. Bangs
Princeton	(Township High School)	D. O. Barto
Quincy	A. A. Seehorn	W. F. Geiger
Ridge Farm	H. H. Kidd	H. H. Kidd
Robinson	C. H. Neilson	O. R. Hedden
Rochelle	C. F. Philbrook	Georgia Bennett
Rockford	P. R. Walker	B. D. Parker
Rock Island	R. G. Young	E. A. Robinson
Roodhouse	W. H. Skinner	Harvey White
Rossville	I. A. Smothers	C. N. Boord
Rushville	N. T. Veach	Florence Young

School	Superintendent	Principal
Salem	D. B. Fager	Laura E. Meyers
Sandwich	W. W. Woodbury	Ellen Bell
Savanna	W. S. Wallace	C. N. Jenks
Shelbyville	G. P. Randle	H. C. Miller
Southern Collegiate Institute (Albion)		Frank B. Hines
Sparta	S. B. Hood	L. J. Sexton
Springfield	J. H. Collins	W. W. Helmle
Sterling	(Township High School)	O. L. Miller
Streator	(Township High School)	S. B. Hursh
Sullivan	J. L. Hughes	E. A. Cross
Taylorville	(Township High School)	W. E. Andrews
Terre Haute, Ind.	William Wiley	Charles Meek
Tuscola	Charles Ammerman	G. F. Arps
Urbana	J. W. Hays	H. T. Wilson
Vienna	M. N. McCartney	Ada McCall
Virden	E. A. MacMillan	M. J. Loveless
Virginia	B. H. Scudder	Lydia G. Clark
Warren	M. C. Ladd	M. C. Ladd
Washington	H. G. Veach	H. G. Veach
Waukegan	W. F. Cramer	W. F. Cramer
Western Military Academy	(Upper Alton)	A. M. Jackson
Wheaton	J. B. Russell	W. T. Stebbins
Wilmington	F. M. Crosby	Helen Buss
Winchester	I. M. Jeffords	I. M. Jeffords
Woodstock	C. W. Hart	Retta Peet
Wyoming	J. M. Hutchinson	O. B. Slane
Yorkville	Herbert Bassett	Nannie S. Hill

ADMISSION BY EXAMINATION

Examinations of candidates for admission to the University are held at the University in September (see program, p. 50), and at the opening of second semester. Each candidate must be in attendance during the whole period of the examinations.

The scholarship examinations,* held each year on the first Saturday in June and the day preceding, in the several

*See State Scholarships, p. 225.

counties of the state, afford an opportunity to pass the entrance examinations before coming to the University, since these examinations are taken as equivalents of the regular entrance examinations.

The subjects upon which the entrance examinations are held are described below.

Text-books are named merely to aid in showing the requirements. Equivalents are accepted.

In all cases 36 credits are required, the term credit meaning the work in one subject continuously pursued, with daily recitations, through one of the three terms of the high school year; or, in other words, the work of sixty recitation periods of forty minutes each, or the equivalent in laboratory, or other practice. Of these 36 credits, 28 must be obtained by all candidates in the subjects, and according to the valuation, stated in the prescribed list given below. The remainder of the 36 may be made up by offerings in any of the subjects in the elective list given below, with the following restrictions and provisions:

1. No offering will be accepted in any one of these elective subjects unless at least equal in quantity to the minimum specified in the table. For example: Astronomy is listed for from 1 to 1½ credits. Nothing less than one term's work, that is, one credit, will be accepted, therefore, in that subject.

2. Those who wish to enter upon the courses leading to the degree of bachelor of arts must offer at least three credits in some one foreign language, chosen from among the electives, in addition to the language chosen from among the prescribed subjects in the first list. The language from the elective list may or may not be the same as that offered in the prescribed list. Those who wish to pursue the study of Latin or Greek in the University must, however, offer nine credits in Latin or six in Greek, respectively.

3. Those who wish to enter upon the courses leading to the degree of bachelor of science, in any line of study except agriculture, must offer solid and spherical geometry among their electives.

4. For entrance upon the agricultural courses leading to the degree of bachelor of science, *any* six credits from the elective list will be accepted instead of the six credits in foreign language. But at least two years of foreign language study in the University must be taken by those who make this option.

The amount of work in each subject which, in the judgment of the University authorities, corresponds to the minimum number of credits assigned is shown by the description of subjects below.

SUBJECTS ACCEPTED FOR ADMISSION, WITH CREDITS

Prescribed

Algebra	4 credits
English Composition	3 credits
English Literature	6 credits
French, or German, or Greek, or Latin	6 credits
Plane Geometry	3 credits
History	3 credits
Physical or Biological Science	3 credits

Elective

Astronomy	1 to 1½ credits
Biology	3 to 6 credits
Botany	1½ to 3 credits
Chemistry	2 to 3 credits
Civics	1 to 3 credits
Drawing	1 to 3 credits
French	3 to 9 credits
Geology	2 to 3 credits
Geometry, Solid and Spherical	1 credit
German	3 to 9 credits
Greek	3 to 7 credits
History	3 credits
Latin	3 to 12 credits
Manual Training	1 to 2 credits
Physics	3 credits
Physiography	1½ to 3 credits
Physiology	1 to 3 credits
Zoölogy	1½ to 3 credits

DESCRIPTION OF SUBJECTS ACCEPTED FOR ADMISSION

1. Algebra.—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of

exponents, and the analysis and solution of problems involving these. The subject as given in Wells's Higher Algebra through quadratic equations, or the same work in Wentworth's Algebra, or an equivalent.

2. ASTRONOMY.—To obtain a single credit for entrance in astronomy, the student must pass an examination covering as much text-book work as is contained in Young's Elements of Astronomy, Todd's New Astronomy, or Howe's Descriptive Astronomy. For 1½ credits, the entrance requirement implies, in addition to the above, some degree of practical familiarity with the geography of the heavens, with the various celestial motions, and with the positions of some of the more conspicuous naked-eye heavenly bodies.

3. BIOLOGY.—The subject as taught in good high schools with laboratory equipment. For the minimum number of credits, one year's work upon such types as are presented in Huxley and Martin's Practical Biology, or Parker's Elementary Biology. For further credits, advanced laboratory work and field collections. Note-books, drawings, collections of specimens, etc., showing work done, must be presented.

4. BOTANY.—A familiar acquaintance is required with the general structure of plants, and of the principal organs and their functions, derived to a considerable extent from a study of the objects; also a general knowledge of the main groups of plants, and the ability to classify and name the more common species. Bergen's Elements of Botany, or Spaulding's Introduction to Botany, indicates the kind of preparation required. Laboratory note-books and herbarium collections must be presented.

5. CHEMISTRY—The instruction must include both text-book and laboratory work. The work should be so arranged that at least one-half of the time shall be given to the laboratory. The course, as it is given in the best high schools in two terms or three terms, respectively, will satisfy the requirements of the University for the two credits or three credits for admission. Remsen's Introduction to Chemistry, Storer and Lindsey's Manual of Elementary Chemistry, and Newth's Elementary Chemistry, are acceptable text-books. The laboratory notes, bearing the teacher's indorsement, must be presented in evidence of the actual laboratory work accomplished. Candidates for admission may be required to demonstrate their ability by laboratory tests.

6. CIVICS.—Such amount of study on the United States constitution, its history and interpretation, as is indicated by any of

the usual high school text-books on civil government, is regarded as sufficient for one term. The work may advantageously be combined with the elements of political economy, or, better, the industrial history of the country.

7. COMPOSITION AND RHETORIC.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of rhetoric. The candidate will be required to write two paragraphs of about one hundred and fifty words each to test his ability to use the English language. The subject as presented in Genung's Outlines of Rhetoric, Scott and Denney's English Composition, or an equivalent.

8. DRAWING.—Free-hand or mathematical drawing, or both. Drawing-books or plates must be submitted. The number of credits allowed depends on the quantity and quality of the work submitted.

9. ENGLISH LITERATURE.—(a) Each candidate is expected to have read certain assigned literary masterpieces, and will be subjected to such an examination as will determine whether or not he has done so. The books assigned for the next three years are as follows:

1899.—Dryden's Palamon and Arcite; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; Coleridge's Ancient Mariner; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Lowell's Vision of Sir Launfal; Hawthorne's House of the Seven Gables.

1900.—Dryden's Palamon and Arcite; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Lowell's Vision of Sir Launfal; Scott's Ivanhoe.

1901.—George Eliot's Silas Marner; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's the Vicar of Wakefield; Coleridge's Ancient Mariner; Cooper's Last of the Mohicans; Tennyson's Princess; Shakspere's The Merchant of Venice; Scott's Ivanhoe.

(b) In addition to the above, the candidate will be required to present a brief outline of American Literature.

(c) The candidate will be examined on the form and substance of one or more books, in addition to those named under (a). For 1899, 1900, and 1901 the books will be selected from the lists below. The examination will be of such a character as to require a minute and thorough study of each of the works named, in order to pass it successfully.

1899.—Shakspere's Macbeth; Milton's Paradise Lost, Books I.

and II.; Burke's Speech on Conciliation with America; Carlyle's Essay on Burns.

1900.—Shakspere's Macbeth; Milton's Paradise Lost, Books I. and II.; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Tennyson's The Princess.

1901.—Shakspere's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison.

10. FRENCH.—*One year's work.*—The candidate must have a thorough knowledge of elementary grammar and the irregular verbs; must be able to pronounce correctly, and to translate simple spoken French phrases. He must have read some 300 pages of easy prose, including one modern comedy, and must be able to translate ordinary French prose at sight.

Two years' work.—In addition to the above, the candidate must show proficiency in advanced grammar, the essentials of syntax, and elementary composition. The reading of not less than 400 pages of standard authors, including two plays of Molière, is required, and the memorizing of not less than six fables or anecdotes.

Three years' work.—In addition to what has already been described, the candidate must have had further work in composition, and must have memorized not less than six poems or anecdotes. He must further have read not less than 500 pages of standard authors, including Molière, La Fontaine, and Hugo. Some acquaintance with modern lyrics is necessary.

11. GEOLOGY.—Familiarity with the matter found in Scott's Introduction to Geology, or a real equivalent. The student must be able to recognize well-marked types of crystalline and fragmental rocks, and to explain the origin of the topography of the region in which he lives. Additional laboratory and field work will be given such credit as it merits.

12. GEOMETRY.—Plane Geometry, as given in Wells's or Wentworth's Geometry, or an equivalent. Great importance is attached to the ability of the student to solve original problems.

13. GEOMETRY.—Solid and Spherical Geometry, as given in Wells's or Wentworth's Plane and Solid Geometry, or an equivalent.

14. GERMAN.—*One year's work.*—Elementary grammar, especially declension of articles and ordinary nouns and pronouns, use of the strong and the weak adjective, the two conjugations of verbs, with the principal parts and meanings of all the strong verbs, separable and inseparable prefixes, the use of common prepositions, the inverted and transposed sentence order. Practice in writing

German sentences should accompany this work throughout the course, but the German script is not insisted upon. Besides the work in grammar, the student should read not less than 150 pages of easy narrative or descriptive prose, giving careful attention to its translation into good English.

GERMAN.—*Two years' work.*—In addition to the work outlined under the one year's requirement, the pupil should know the syntax of cases, uses of the subjunctive and infinitive, complex sentence structure, uses of modal auxiliaries and of participial constructions. The translation into German of about thirty-five pages of narrative prose should insure ready application of grammatical principles. As an additional reading requirement, from 250 to 300 pages, including one of Schiller's historical dramas and about thirty pages of German lyrics, should be translated. Constant practice in reading German should secure an accurate pronunciation and a feeling of the rhythm and rhetorical form of the works studied.

GERMAN.—*Three years' work.*—The third year's study should aim to secure an easy reading knowledge of the language. Accurate and idiomatic translations into English, constant practice in sight translation and in writing from dictation should be insisted upon. Standard prose of the grade represented by Heine, Freytag, or Dahn, not less than 100 pages should be read, together with selections from classic poetry. Lessing's Minna von Barnhelm and Goethe's Egmont or Iphigenie auf Tauris are especially recommended. Additional work in prose composition, or in the writing of paraphrases of the texts read, should insure the ability to write simple German.

15. GREEK.—To obtain three credits, the exercises in any of the beginning books, and one book of the Anabasis, or its equivalent, must be offered. For six credits, two books of the Anabasis and three of Homer, or their equivalents, additional to the above, must be presented.

16. HISTORY.—At least one year in one of the following subjects: (a) The History of England and of the United States; (b) General History; (c) The History of Greece and Rome. The statement of requirements in each subject implies the use of a substantial text-book, together with some elementary training in the use of large reference books.

17. LATIN.—*One year's work, three credits.*—Such knowledge of inflections and syntax as is given in any good preparatory Latin book, together with the ability to read simple fables and stories.

Two years' work, six credits.—Four books of Cæsar's Gallic

War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

Three years' work, nine credits.—Six orations of Cicero. The ability to write simple Latin based on the text. The simpler historical references and the fundamental facts of Latin syntax.

Four years' work, twelve credits.—The scansion of hexameter verse, six books of Vergil, with history and mythology.

18. MANUAL TRAINING.—Experience in the use of wood-working tools will be required. Forge, foundry, or machine work may be substituted for wood work. The number of credits allowed will depend upon the time spent upon the subjects and the technical knowledge obtained.

19. PHYSICAL OR BIOLOGICAL SCIENCE.—For this there may be offered any one of the following subjects or combination of subjects: Physics, one year; chemistry, one year; botany and zoölogy, each a half year; biology, the study of plant or animal types, one year.

The subjects must be taught in part by laboratory methods and the pupil's note-books must be submitted. Other evidences of work done, as illustrative drawings, collections of specimens, etc., should be presented. Examinations cover the subject-matter as presented in text-books in most common use in high schools. See also the descriptions given under the several subjects.

20. PHYSICS.—The elements of physical science as presented in such text-books as Appleton's School Physics, or Avery's Elements of Natural Philosophy, or Carhart and Chute's Elements of Physics, or Gage's Elements of Physics. The candidate must have had laboratory practice equivalent to that described in the laboratory text-books of Hall and Bergen, Allen, or Chute. The candidate's laboratory note-book will be accepted as part of the examination.

21. PHYSIOGRAPHY.—The amount and character of the work required for the minimum credit may be seen by referring to Mill's Realm of Nature.

For additional credits, the principles of climatology, ability to read physical and contour maps, interpretation of weather maps, and forecasting of weather, etc., will be considered.

22. PHYSIOLOGY.—For one credit are required the anatomy, histology, and physiology of the human body and the essentials of hygiene, taught with the aid of charts and models to the extent given in Martin's Human Body (Briefer Course). For more than one credit, the course must have included practical laboratory work on the part of the student. The number of credits, beyond one,

will be determined in each case according to the quantity and quality of the work.

23. Zoölogy.—Field, laboratory, and text-book work to the amount of a half year in the high school. Colton's Practical Zoölogy, the zoölogical part of Huxley and Martin's Practical Biology, or of Parker's Elementary Biology, will satisfy the laboratory requirements.

PROGRAM OF EXAMINATIONS, SEPTEMBER 14-19, 1899

All persons who wish to enter the University in September, 1899, except those holding certificates of graduation from accredited schools and scholarship certificates, and those for whom a transfer of all entrance credits from some other college or university has already been approved, must present themselves at the Registrar's office, Library Hall, at 9 o'clock a. m., Thursday, September 14th. At that time applications for admission will be received, and applicants will be given all necessary directions as to examinations.

The program of examinations is as follows:

History, 3 or 6 credits	Thursday	1:00 p.m.
Botany, 1½ or 3 credits	Thursday	3:30 p.m.
English Literature, 6 credits	Friday	8:00 a.m.
English Composition, 3 credits	Friday	10:30 a.m.
Latin, 3 or 6 credits	Friday	1:00 p.m.
Physics, 2 or 3 credits	Friday	3:30 p.m.
Algebra, 4 credits	Saturday	8:00 a.m.
Astronomy, 1 to 1½ credits	Saturday	10:30 a.m.
Geology, 2 or 3 credits	Saturday	10:30 a.m.
Geometry, Plane, 3 credits	Saturday	1:00 p.m.
Geometry, Solid, 1 credit	Saturday	2:45 p.m.
Physiology, 1 or 3 credits	Saturday	3:30 p.m.
German, 3 or 6 credits	Monday	8:00 a.m.
Zoölogy, 1½ or 3 credits	Monday	10:30 a.m.
French, 3 or 6 credits	Monday	1:00 p.m.
Chemistry, 2 or 3 credits	Monday	3:30 p.m.
Latin, 7 to 12 credits	Tuesday	8:00 a.m.
French, 7 to 9 credits	Tuesday	10:30 a.m.
German, 7 to 9 credits	Tuesday	10:30 a.m.
Biology, 3 to 6 credits	Tuesday	1:00 p.m.
Physiography, 1½ to 3 credits	Tuesday	3:30 p.m.
Civics, 1 or 3 credits	Tuesday	3:30 p.m.

ADMISSION BY TRANSFER FROM OTHER COLLEGES AND UNIVERSITIES

A person who has entered another college or university of recognized standing will be admitted to this University upon his presenting a certificate of honorable dismissal from the institution from which he comes and an official statement of the subjects upon which he was admitted to such institution, provided it appears that the subjects are those required here for admission by examination, or real equivalents. Candidates, to enter the University in this way, should submit such papers to the Registrar before the time of entrance, so that all doubtful points may be cleared up in advance.

ADMISSION AS SPECIAL STUDENTS

Persons over twenty-one years of age, not candidates for a degree, may be admitted to classes, after satisfying the President and the professor in charge of the department in which such classes are taught, that they possess the requisite information and ability to pursue profitably, as special students, the chosen subjects. Such students are not matriculated; they pay a tuition fee of seven dollars and a half a semester, in addition to the regular incidental fee of twelve dollars.

ADMISSION TO ADVANCED STANDING

After satisfying in some of the ways already enumerated all the entrance requirements for admission to the University, and after matriculating, the applicant for advanced standing may secure such standing either by examination or by transfer of credits from some other college or university.

1. *By Examination.*—Candidates for advanced standing, not from other colleges or universities, may secure such standing on examination. In the case of freshman students seeking advanced standing on the basis of their preparatory

work, such standing shall be granted after satisfactory examination only, unless the applicants are from fully accredited schools. In that case a transfer of credits may be made as provided below.

2. *By Transfer of Credits.*—Credits from other colleges or universities may be accepted by the Faculty for advanced standing; but at least one year's work in residence at the University is required of all candidates for a bachelor's degree.

In all cases, a certificate of honorable dismissal is required, together with a certified record of work done in the institution from which the applicant comes. These should be presented for approval some time before the student enters for work.

Upon approval of the Faculty freshmen may receive credit for advanced work done in fully accredited high schools.

REGISTRATION

At the beginning of each semester each student must present himself for registration within the time set for that purpose, before the formation of classes, and he must be present at the first exercise of each class he is to attend.

EXAMINATIONS

Examinations are held as often as in the judgment of the instructor the necessities of the work require. Examinations are also given at the close of each semester, on the work of the semester, in all subjects except those whose character renders it unnecessary or impracticable.

A record is kept of each student's standing.

SEMESTERS AND RECESS

The University year is divided into semesters each covering eighteen weeks of instruction. There is a recess of two weeks at the Christmas holidays.

For dates of opening and closing, see Calendar, p. 5.

GRADUATION

In all cases credit for one hundred and thirty "semester hours" (see p. 167) is required for graduation. The candidate for a degree in any course must complete all the subjects prescribed for graduation in that course, and when, in doing this, he does not gain the necessary credit of one hundred and thirty hours, he must make up the deficiency by the election of other courses.

The combinations of studies under which a student may graduate are too numerous to describe here; they are given under the separate colleges and schools.

ADMINISTRATION OF THE UNIVERSITY

GOVERNMENT

The government of the University is vested by the Trustees primarily in the President of the University, in the Faculty, in the Council of Administration, and in the Deans. The President is the executive head of the University.

The Dean of the General Faculty has general oversight of the instructional work of the University, and especial supervision of the graduate school. By order of the Board of Trustees he also fills the office of Vice-President.

The Dean of each college is responsible for the enforcement of all University regulations within his college.

The Council of Administration is composed of the President, the Dean of the General Faculty, the Dean of the Woman's Department and the Deans of the separate colleges. It constitutes an advisory board to the President, *and has exclusive jurisdiction over all matters of discipline.*

The Council does not exercise general legislative functions, but when any matter arises which has not been provided for by rule or common usage or legislative action by the General Faculty, and which cannot be conveniently laid over till the next meeting of the General Faculty, the Council may act upon the same according to its discretion.

The determination of the general internal policy of the University is in charge of the Faculty.

The faculties of the different colleges and schools of the University are composed of the members of the corps

of instruction of these colleges and schools, and have jurisdiction over all matters which pertain exclusively to these organizations, subject always to higher University authority.

ORGANIZATION

For the purpose of more efficient administration, the University is divided into several colleges and schools. This division does not imply that the colleges and schools are educationally separate. They are interdependent and together form a unit. In addition to the courses mentioned as given in each college and school, instruction in military science and physical training is provided. The organization is as follows:

I. The College of Literature and Arts.
II. The College of Engineering.
III. The College of Science.
IV. The College of Agriculture.
V. The Graduate School.
VI. The School of Library Science.
VII. The School of Music.
VIII. The School of Law.
IX. The School of Medicine.
X. The School of Pharmacy.

THE COLLEGE OF LITERATURE AND ARTS

The College of Literature and Arts offers—

1. General courses, classified according to the principal line of work chosen.

2. Specialized courses, or courses under the group system, including—

a. The Classical Group.
b. The English Group.
c. The German and Romanic Language Group.
d. The Latin and Modern Language Group.
e. The Philosophical Group.
f. The Political Science Group.

THE COLLEGE OF ENGINEERING

The College of Engineering offers courses—

1. In Architecture.
2. In Architectural Engineering.
3. In Civil Engineering.
4. In Electrical Engineering.
5. In Mechanical Engineering.
6. In Municipal and Sanitary Engineering.

THE COLLEGE OF SCIENCE

The College of Science offers courses arranged in four groups, as follows—

1. The Chemical and Physical Group.
2. The Mathematical Group.
3. The Natural Science Group.
4. The Philosophical Group.

THE COLLEGE OF AGRICULTURE

The College of Agriculture offers—

1. A course leading to Animal Husbandry as a specialty.
2. A course leading to Horticulture as a specialty.
3. Ten weeks' work, beginning after the holiday recess, to students not otherwise enrolled.

THE GRADUATE SCHOOL

The Graduate School offers courses in—

1. Agriculture.
2. Engineering.
3. Literature, Philosophy, and the Arts.
4. The Sciences.
5. Law.

An enumeration of the departments of graduate study is given at the beginning of "General Description of Courses," (p. 167), and the separate graduate courses offered are described in connection with the proper subjects in the list of courses which there follows.

THE SCHOOL OF LIBRARY SCIENCE

The School of Library Science, or the State Library School, offers a course of study, extending over four years, in preparation for the practice of the work of a librarian. The course leads to the degree of bachelor of library science.

THE SCHOOL OF MUSIC

The School of Music offers courses in vocal and instrumental music, leading to the degree of bachelor of music.

THE LAW SCHOOL

The Law School offers a course of study leading to the degree of bachelor of laws.

THE SCHOOL OF MEDICINE

The School of Medicine offers a course of study leading to the degree of M.D.

THE SCHOOL OF PHARMACY

The School of Pharmacy offers a course in all branches necessary to a complete scientific and practical knowledge of pharmacy, including pharmacy, chemistry, materia medica, botany, physics, and physiology. The course leads to the degree of graduate in pharmacy or to that of pharmaceutical chemist.

COLLEGE OF LITERATURE AND ARTS

FACULTY

Andrew S. Draper, LL.D., President.
David Kinley, Ph.D., Dean, Economics.
Thomas J. Burrill, Ph.D., LL.D., Botany.
Samuel W. Shattuck, C.E., Mathematics.
Charles W. Rolfe, M.S., Geology.
Arthur W. Palmer, Sc.D., Chemistry.
Frank F. Frederick, Art and Design.
Herbert J. Barton, A.M., Latin.
Charles M. Moss, Ph.D., Greek.
Daniel K. Dodge, Ph.D., English.
Arnold Tompkins, Ph.D., Pedagogy.
Albert P. Carman, Sc.D., Physics.
Evarts B. Greene, Ph.D., History.
George T. Kemp, M.D., Ph.D., Physiology.
George W. Myers, Ph.D., Astronomy.
Edgar J Townsend, Ph.M., Mathematics. [On leave.]
Jacob K. Shell, M.D., Physical Training.
Lewis A. Rhoades, Ph.D., German.
Violet D. Jayne, A.M., English.
Harry S. Grindley, Sc.D., Chemistry.
T. Arkle Clark, B.L., Rhetoric.
Herman S Piatt, Ph.D., Romanic Languages.
Arthur H. Daniels, Ph.D., Philosophy.
George D. Fairfield, A.M., Romanic Languages.
Charles W. Tooke, A.M., Public Law and Administration.
Frank Smith, A.M., Zoölogy.
John E. McGilvrey, A.B., Pedagogy.
Henry L. Schoolcraft, A.M., History.

Neil C. Brooks, Ph.D., German.
Jennette E. Carpenter, O.M., Physical Training.
George A Huff, Jr., Coach of Athletic Teams.
Agnes S. Cook, A.B., Rhetoric.
Martha J. Kyle, A. M., Rhetoric.
George H. Meyer, A. M., German.
John P. Hylan, Ph.D., Psychology.
Matthew B. Hammond, Ph.D., Secretary, Economics and Sociology.
Henry L. Coar, Ph.D., Mathematics.
Charles W. Young, B.S., Botany.
Stanley M. Lewis, Art and Design.
Lucy H. Carson, Ph.B., Fellow, English.
Emma E. Seibert, B.S., Fellow, Art and Design.
Alexander D. DuBois, Military.

AIMS AND SCOPE

The College of Literature and Arts includes those branches usually comprised in a department of philosophy and arts, with the exception of the natural sciences. The aim of the College is a double one: to furnish a liberal education, and to afford the largest opportunity for specialization in literary and philosophical subjects. It is believed that this double purpose can be best accomplished by a judicious combination of disciplinary and information studies, which, while so directing the work of the student as to secure the desired mental training, shall also allow him large liberty of choice both in his main lines of work and in subjects auxiliary thereto.

In accordance with this general plan, it is provided that students may graduate either under the general course system or under the specialized course, or group, system.

THE GENERAL COURSE SYSTEM

A general course is one in which less than three years' work in any one subject, or group of allied subjects, is required for graduation, and in which no thesis is required.

In the general courses a minimum of prescribed work is laid out for the first two years. The whole of the work of the first year, and part of that of the second, is prescribed. The work for the rest of the course is elective. Within the limits of the prescribed work, however, the student is permitted a choice of lines of work.

In choosing his electives, each student must select at least two subjects from the major electives.

In the choice of his electives other than his major work the student may take a minimum of work in each of a maximum number of subjects, or he may take a maximum amount of work in the minimum number of subjects necessary to fill up his time according to the rules of the University.

The elective courses open to the students of the College include subjects from the Colleges of Science and Engineering. The sciences are not an integral part of the work of the College, but the training derived from their study is so important a part of a liberal education that every student of the College is earnestly advised to extend his study of them so far as may be.

REQUIREMENTS FOR GRADUATION UNDER THE GENERAL COURSE SYSTEM

Credit for 130 hours,* including the prescribed military and physical training, are required for graduation under the general course system. Every student must take the prescribed subjects; in addition, he must select at least two subjects from the list of major electives, and he must then choose work sufficient to yield him the remainder of his necessary credits.

No credits will be granted in any subject except according to the enumeration given. For example, if work is offered in a subject for from five to ten hours, no credit will be allowed for less than five hours' work.

* For explanation of "hours" see p. 167.

THE SPECIALIZED COURSE, OR GROUP, SYSTEM

A specialized, or group, course is one which contains at least twenty semester hours' work in a single subject preceding the senior year, followed by an additional ten hours in that subject during the senior year, and the writing of an acceptable thesis. No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work, and each student who wishes to be so enrolled must specify the course he desires to enter not later than the beginning of his junior year.

In the specialized course, or group, system the prescribed work is the same as in the general course system. The other work necessary for graduation is to be obtained in the subjects of the group which the student enters.

Only those students who pursue a specialized course shall, as a rule, be selected from this College for fellowships, scholarships, and other similar University honors.

REQUIREMENTS FOR GRADUATION UNDER THE SPECIALIZED COURSE, OR GROUP, SYSTEM

One hundred and thirty hours, including military and physical training, together with an acceptable thesis, are required for graduation under the group system. Every student must take the prescribed subjects. In addition he must, not later than the beginning of his junior year, specify the group in which he wishes to graduate. He must at this time select one subject in the group as his major subject, the study of which, alone or with the subjects designated as specifically preparatory* to it, he must pursue during the remaining two years, securing therein at least thirty hours of credit. He must also select, with the approval of the head of the department in which his major subject lies, a sufficient number of other studies to yield him the neces-

*See p. 63.

sary hours of credit, and he must present an acceptable thesis.

The thesis required for graduation must be on a topic connected with the student's major study. It must present the results of investigation made under the immediate supervision of the instructor during the last year of the student's course. This work of investigation shall be the required work in the major subject, in whole or in part, during that year, and shall receive credit like any other study. Separate credit will not be given for the thesis.

No credit will be allowed in any subject except according to the enumeration given, and the same work shall not be credited both as major and as minor work.

The groups are as follows:

The *Classical Group,* including Greek and Latin as the major subjects. One of these languages must be taken for thirty, the other for twenty, hours.

The *English Group,* including the Scandinavian languages. Students in this group must take two years of French or German before the beginning of the junior year. Those electing the course in language must have at least two years of German.

The *German and Romanic Language Group.* Either German or French may be taken as a major, but as a condition of graduation twenty hours of credit in the other must be secured. Besides the required work in English, all students must elect additional English sufficient to make a total of at least ten hours. Students of marked ability, taking French as a major, will be advised to take the courses offered in Spanish or Italian.

The *Latin and Modern Language Group,* including Latin as a major, and German and French as minors. Ten hours in one minor are required.

The *Philosophical Group,* including pedagogy, philosophy, psychology, and mathematics as major subjects. In this group the second year of the student's work is devoted to studies specifically preparatory to the principal subject, which is itself taken up at the beginning of the third year.

Students in this group who make *philosophy* a major must, in the second year, make ten hours of credit from among these subjects: Anthropology, psychology, economics 17 (sociology), Greek 3.

Those who make *psychology* their major subject must, in their second year, make ten hours from among these subjects: botany 1, 2; economics 17; philosophy 2, 6, 8; physiology 4; zoölogy 1.

When *pedagogy* is the major, the work specifically preparatory is logic (philosophy 1a or 1b), outlines of philosophy (philosophy 2), and elementary and educational psychology (psychology 1 and 4).

Those students who make *mathematics* their major work must take the courses in mathematics numbered 2, 4, 6, 7, 9, 10, 11, 15, 16, 17, and may elect as many more courses as desired. They must also make ten hours in philosophy, (including philosophy 1), and either twenty hours in German or ten in French.

The *Political Science Group,* including economics, history, and public law and administration. All students in this group must take the three elementary courses: history 1, economics 1, a and b, and public law and administration 1; and must also secure five hours in physiography, and at least three hours in philosophy, selected from courses 1, 2, 3, and 4. All students in the group must take one year's work in either French or German. before the beginning of the junior year, or must furnish satisfactory evidence of their ability to use at least one of the languages.

The only degree given in this College is that of A.B.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Advanced Algebra (Math. 1, 2); 2 or 3 hours.
English 1; 5 hours.
French 1, German 1 and 3, Greek 1. 2. 3, or Latin 1; 10 hours.
Geometry, Solid and Spherical; 3 hours.
History 1, 2, 6; 6 hours.

Logic (Philosophy 1a or 1b); 3 hours.
Military 1, 2; 5 hours.
Physical Training—
For men, 2½ hours.
For women, 3 hours.
Natural Science; 10 hours.
Rhetoric 1; 6 hours.
Trigonometry (Math. 3, 4); 3 or 2 hours.

ELECTIVE

MAJOR COURSES

Economics 1 to 19; 20 to 48 hours.
English 1 to 15; 20 to 40 hours.
French 1 to 4; 20 to 36 hours.
German 1, 3 to 13; 20 to 50 hours.
Greek 1 to 8; 20 to 30 hours.
History 1 to 12; 20 to 49 hours.
Latin 1 to 9; 20 to 50 hours.
Mathematics 1 to 24; 20 to 57 hours.
Pedagogy 1 to 4; 20 hours.
Philosophy 2 to 8; 20 to 21 hours.
Public Law and Administration 1 to 9; 20 to 30 hours.
Psychology 1 to 5; 20 to 26 hours.
Rhetoric 1 to 5; 20 to 26 hours.

MINOR COURSES

The necessary number of hours additional to those provided for in the prescribed subjects and the chosen major electives may be secured from any of the subjects offered in the College of Literature and Arts, or in the College of Science, the requirements for which the student can meet. Not more than twenty hours in Art and Design may be counted toward the degree, nor more than five hours in physical training, including the amount prescribed. Course 12 in library science may be taken as a minor. Certain courses offered in the College of Engineering may also be chosen; as, for example, history of architecture (Arch. 6); heating and ventilation (Arch. 13), etc.

The attention of young women is especially called to the courses grouped under Household Economics, p 165.

COURSE OF INSTRUCTION

All the prescribed subjects must be *finished by the end of the sophomore year.* The following statement gives the years and semesters in which they occur:

FIRST YEAR.

Fifteen to eighteen hours' work per week, exclusive of military and physical training, must be chosen each semester from among the following subjects: those in italics must be in the list chosen. It is expected that five hours in natural science will be taken each semester from the options named below; but if one desires to pursue an extended course in physics instead, he may take up that subject in the sophomore year.

First Semester—

History: Mediæval and Modern European History (Hist. 1), or 19th Century (Hist. 2); 2 or 3 hours.

Language and Literature: English 1, 5 hours; French 1, or German 1, or Greek 1, or Latin 1, 5 hours; *Rhetoric* 1, 3 hours.

Mathematics: Advanced Algebra and Trigonometry (Math. 1, 2 or 3, 4), 5 hours.

Military: Tactics and Drill (Mil. 1, 2); 2 hours.

Natural Science: Astronomy 5, or Biology 1, or Botany 2, or Chemistry 1, or Physiography 1, or Zoölogy 5 or 6; 5 hours.

Physical Training—

For men—Physical Training 1, 3; 1¼ hours.

For women—Physical Training 7, 9; 2 hours.

Second Semester—

History: Mediæval and Modern European History (Hist. 1), or 19th Century, or Roman History (Hist. 2 or 6), 2, 3, or 5 hours.

Language and Literature: French 1, or German 8, or Greek 2, or Latin 1, continued as begun in the first semester; 5 hours. *Rhetoric* 1, continued; 3 hours.

Mathematics: Solid and Spherical Geometry; 3 hours.

Military: Drill (Mil. 2); 1 hour.

Natural Science: Astronomy 4, or Botany 1, or Chemistry 2 or 2a or 3a or 3b, or Geology 3, or Physics 2, or Physiology 4, or Zoölogy 1, 6, or 7; 5 hours.

Physical Training—

For men—Physical Training 1, 3; 1¼ hours.

For women—Physical Training 7; 1 hour.

SECOND YEAR

Fifteen to eighteen hours' work per week, exclusive of military and physical training, must be chosen each semester. This work *must include all of the prescribed subjects which were not taken in freshman year.* (See pp. 64, 65, and the classification under first year.) It must also include the following:

Logic: (Phil. 1a first semester, or Phil. 1b second semester); 3 hours.

Military: Drill (Mil. 2) both semesters; 2 hours.

The remaining hours may be made up by the election of any subjects the requirements for which the student can meet.

THIRD AND FOURTH YEARS

The studies of these are all elective.

DESCRIPTION OF DEPARTMENTS

ART AND DESIGN

This work subserves a threefold purpose: (1) It affords students the opportunity to acquire such a knowledge of free-hand drawing as their chosen courses may require. (2) It offers such as have a talent for art the best facilities for pursuing studies in all branches of fine art. (3) It offers those who wish to become teachers of drawing special opportunities for study.

Special students, not otherwise connected with the University, may enter this department upon payment of moderate fees. For such students a fourth year of work is offered in drawing, painting, modeling, or design, as they may elect.

ECONOMICS

The work in economics for undergraduates is so arranged that the student can take a continuous course for from one to three years. The courses are designed to cover

as large a field as possible in the literature of the subject, and to present all disputed matters from different points of view.

Minor courses in sociology are provided for in the department.

ENGLISH LANGUAGE AND LITERATURE

The courses are designed to give a continuous view of the twofold subject from the earliest times to our own day. In the junior and senior years double courses are offered, so that students, having had the fundamental work of the sophomore year, may, if desired, confine themselves either to philology or to literature. The aim in the study of literature is to approach the works of an author from the philosophical, emotional, and esthetic, as well as from the merely linguistic and historical points of view.

FRENCH

(See Romanic Languages, p. 73.)

GERMAN

Four years of instruction are offered in this subject. By alternating the work in the third and fourth years, provision is made that students whose knowledge of the language at entrance enables them to begin with the third year's work, can pursue the subject throughout their course. The work of the first and second years is intended to give the student the best possible reading knowledge. In the second year an opportunity is offered those whose special interest in the language is as a tool in scientific or technical studies, to read scientific works during the winter and spring terms; but ability to translate readily and accurately is, in all cases, especially emphasized.

The work of the third and fourth years consists of a critical study of the classic poets and modern writers, and of lectures in German literature.

GREEK

The general purposes of the courses laid out in this subject are: first, to teach the Greek language; second, to

train students to appreciate its literature; and third, to call attention to those numerous problems in the history, thought, and institutions of the Greeks, which illustrate similar phenomena noticeable among ourselves. To accomplish the first object, due attention is paid to the principles of grammar, particularly by making the syntax appear as the evidence of orderly mental procedure, and by continual practice in extemporaneous translation. The second is effected by a study of the surroundings and spirit of an author, and of those literary devices which give character to his productions. The third end is reached through familiar talks upon suitable topics as they are met.

HISTORY

In the courses offered by this department the effort is made, not merely to give students a general knowledge of historical facts, but also to give them some conception of the aims and methods of historical science, and of the materials with which it deals. To this end exercises in historical investigation, more or less elementary, will form a prominent part of the work in all the higher undergraduate courses, as well as in the seminaries.

ITALIAN

(See Romanic Languages, p. 73.)

LATIN

The courses at present offered in Latin are nine in number and extend over three years. The first year's instruction is, as far as needed, grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language.

As soon as this preliminary work is done, the attention is directed to two ends. The first is the acquisition of power to read the language with ease and pleasure. The thought is constantly emphasized that students are not simply reading Latin—they are reading some of the great literary

masterpieces of the world, and should enjoy them as such. The second aim is to introduce the student to the daily life of the Roman; to make his home life vivid, his political life a reality. The contribution of the Roman world to the language, literature, and institutions of our time is so great that an intimate acquaintance with that life is of the highest educational value.

The courses offered include a teachers' class, the work of which is based on the needs of those teaching preparatory Latin, and methods of presentation, difficulties, aims, and results are discussed. The members of the class do the work which they, as teachers, should require of their pupils, and at intervals take charge of the recitation.

MATHEMATICS

The object of the instruction in pure mathematics is to promote habits of mental concentration and continuity of thought, to develop the capacity to form and combine abstract conceptions, and to cultivate deductive reasoning. The course is so arranged as to meet the requirements of those who wish to fit themselves for teaching, and of those who study the science for the love of it.

The mathematical courses open to students of the College of Literature and Arts, include the entire offering of the University in mathematics.

MILITARY SCIENCE

The work of the department of military science is prescribed for all male students. The department therefore belongs to all the colleges alike. A full description of the work offered and of the aims and scope of the department will be found farther on in the catalogue. (See p. 261.)

PEDAGOGY

The work of the department of pedagogy is designed for those who desire a thorough and philosophic knowledge of the principles and practice of teaching. It seeks to give a

comprehensive insight into school education, its phases, and problems; and thus to be of special service to those who may hold important positions in school work. The course is elastic, and, so far as possible, will be adjusted to suit the needs of the students who take the work.

PHILOSOPHY

The work in this department includes history of philosophy, metaphysics, ethics, and logic, and is so arranged that the student may take a continuous course for either one or two years.

The courses are planned to meet the needs of those who make philosophy their specialty, and also of those who desire an acquaintance with the subject as a means of general culture. It is the constant aim to emphasize the meaning and interest of philosophy and the relations of its problems to the life of man.

PHYSICAL TRAINING

The work of this department is offered to all students in the University. Consequently the department properly belongs in all the colleges. A full description of its aim and scope is given farther on. (See p. 263.)

PUBLIC LAW AND ADMINISTRATION

The courses in public law and administration are planned with two purposes in view: (1) to give, in conjunction with the instruction in economics and history, that information and training which are requisite to intelligent citizenship; and (2) to afford opportunities for advanced work to those who may desire more thorough preparation, either for active political life or preliminary to the study of law.

To meet these ends, the work is so arranged that the subject may be pursued continuously for three years. The elementary courses are given every year, while the advanced courses are offered in alternate years.

The courses, as a whole, are intended to cover the theory of the state, its organization, and practical operation.

PSYCHOLOGY

Besides the opportunity offered in this department for scientific training and original research, there is also given a basis for general culture. The student is taught to observe psychic phenomena in himself and in his social surroundings, both individual and collective, and is thus given a standpoint from which to approach social and ethical questions intelligently.

Historically, psychology is treated with a view to giving the student a connected idea of the development of the subject. Its experimental development and recent phases are given special attention, with particular comment upon the probable lines of its future development, and the place in human economy which it aims to fill.

RHETORIC AND ORATORY

The courses offered in rhetoric and oratory are five in number, and extend over four years. The object of the courses is to acquaint the student with the principles of rhetoric, to teach him correctness and effectiveness in the writing of English, and to give him some practice in the oral expression of his ideas. In the first year's work a textbook is used, supplemented with lectures. One or two short themes a week are required from each student. These are read, carefully criticized, and, when necessary, are handed back to be rewritten. More emphasis is put upon practice than upon theory. A year's work in the writing of daily themes is intended to give practice in higher English composition. The courses in argumentation and oral discussions give opportunity for the writing and delivery of argumentative discourse.

ROMANIC LANGUAGES AND LITERATURES

This department offers four years of instruction in French and one year each in Spanish and Italian. In the elementary courses the main object is to give the student correct pronunciation, grammatical knowledge, and the abil-

ity to read the languages with facility. In the second year attention is especially directed to various phases of nineteenth century literature; effort is made to ground the student thoroughly in the modern idiom, and lectures are given upon the outlines of French literature. The work of the third year is a study of the masterpieces of the seventeenth century. Ability to understand readily spoken French is requisite for admission to this course. The field of the fourth year's work is literature and society in the eighteenth century. A graduate course is offered in Old French; some of the more important texts are studied, and attention is given to the origins of the language.

SOCIOLOGY

See economics in the philosophical group in the College of Science, p. 130, and courses 15, 16, and 18 under economics, in the "General Description of Courses," p. 197. See also, for allied courses, anthropology, p. 170, and psychology, p. 241.

SPANISH

See Romanic Languages.

COLLEGE OF ENGINEERING

FACULTY

Andrew S. Draper, LL.D., President.
N. Clifford Ricker, M.Arch., Dean, Architecture.
Thomas J. Burrill, Ph.D., LL.D., Bacteriology.
Samuel W. Shattuck, C.E., Mathematics.
Ira O. Baker, C.E., Civil Engineering.
Arthur N. Talbot, C.E., Municipal and Sanitary Engineering; Mechanics.
Arthur W. Palmer, Sc.D., Chemistry.
Frank F. Frederick, Art and Design.
Samuel W. Parr, M.S., Applied Chemistry.
Daniel K. Dodge, Ph.D., English.
Lester P. Breckenridge, Ph.B., Mechanical Engineering.
David Kinley, Ph.D., Economics.
Albert P. Carman, Sc.D., Physics.
George W. Myers, Ph.D., Astronomy and Applied Mathematics.
Jacob K. Shell, M.D., Physical Training.
Lewis A. Rhoades, Ph.D., German.
Edgar J Townsend, Ph.M., Mathematics. [On leave.]
James M. White, B.S., Architecture.
William D. Pence, C.E., Civil Engineering.
William Esty, B.S., A.M., Electrical Engineering.
Violet D. Jayne, A.M., English.
William H. VanDervoort, M.E., Mechanical Engineering.
Harry S. Grindley, Sc.D., Chemistry.
T. Arkle Clark, B.L., Rhetoric.
Herman S Piatt, A.M., French.

Fred A. Sager, B.S., Physics.
Cyrus D. McLane, B.S., Architecture; Mechanics.
James D. Phillips, B.S., General Engineering Drawing.
Seth J. Temple, B.S., Secretary; Architecture.
Oscar Quick, A.M., Physics.
William H. Browne, Jr., A.B., Electrical Engineering.
Agnes S. Cook, A.B., Rhetoric.
George H. Meyer, A.M., German.
William C. Brenke, B.S., Mathematics.
Charles T. Wilder, B.S., Photography; Blue Prints.
Neil C. Brooks, Ph.D., German.
Edward L. Milne, B.S., Mathematics.
Martha J. Kyle, A.B., Rhetoric.
Henry L. Coar, A.M., Mathematics.
Edward C. Schmidt, M.E., Mechanical Engineering.
Charles V. Seastone, B.S., Mechanics.
Hubert V. Carpenter, B.S., Physics.
Harry W. Baum, B.S., Civil Engineering.
Stanley M. Lewis, Art and Design.
John Nevins, B.S., General Engineering Drawing.
Edd C. Oliver, B.S., Mechanical Engineering.
Harry C. Marble, B.S., Electrical Engineering.
Cyril B. Clark, Machine Shop.
Albert R. Curtiss, Wood Shop.
Henry Jones, Forge Shop.
Joseph H. Wilson, Foundry.
Alexander D. DuBois, Military.

AIMS AND SCOPE

The purpose of the College of Engineering is thoroughly to educate engineers and architects. Its aim is therefore twofold—general and technical. A considerable proportion of the course of study is devoted to general and literary work, since a graduate is now expected to arrange his ideas in clear order and to write and speak effectively. Professional success depends upon this power far more than is commonly supposed.

There is an ever increasing fund of general and scientific knowledge with which every educated man is expected to be conversant, if he desires to retain the esteem of his associates and clients. A large and most valuable portion of this knowledge is still locked up in foreign languages, and these must be acquired by patient study and practice.

It might appear that this general training would be sufficient to demand the entire attention of the student during his whole course, but not less than one-half his time must be given to purely technical training and to the acquirement of a professional capital or stock of information and knowledge of details, together with extensive practice in the attack and solution of problems and difficulties.

METHODS OF INSTRUCTION

Whenever suitable text-books can be found, they are employed, because their use saves much time in acquiring facts and data, and because such books become doubly valuable for later reference when enriched by notes and additions. But to arouse most fully the enthusiasm of the student, discussions and formal lectures are necessary, and they must be fully illustrated by sketches, diagrams, drawings, and photographs of executed work. In all courses of study offered by this College, drawing, in its manifold forms and uses, is made a special feature, both in its applications and its modes of execution.

EQUIPMENT

The equipment of the various departments is described under appropriate heads. In addition to this, the College has a good reference library and some valuable apparatus of a general character. The most important portion consists of a collection of machines and apparatus for abbreviating computations, and especially for use in the calculation of tables. The principal instruments are here mentioned:

(1) A Thomas ten-place arithmometer, the largest size

manufactured, imported especially for the University, and giving products of numbers to twenty places. (2) Two Thacher's computing scales for performing multiplication, division, squaring, and extraction of square root. (3) An Amsler's polar planimeter for measuring areas of figures of any form, and employed principally in graphic statics, or in measuring indicator diagrams. (4) A Coradi's rolling planimeter and a Coradi's polar planimeter for very accurate use. (5) An Amsler's integrator for obtaining area, static moment, and moment of inertia of a plane figure, especially of sections of columns, beams, etc. (6) A Coradi's pantagraph of best construction for the reduction of drawings and maps. (7) Various computing machines, including Boucher's calculator, Ram's slide rules, duplex slide rule, Webb's adders, the ribbon adder, etc. (8) Grant's computing machines. Cox's graphical computers.

DESCRIPTION OF DEPARTMENTS

ARCHITECTURE

The department of architecture and architectural engineering occupies nearly the entire upper story of Engineering Hall, with spacious drawing rooms lighted by skylights, convenient class rooms, cabinet, museum, and studies.

EQUIPMENT

A large collection of casts of ornament is placed on the walls of the drawing rooms. Models of ceilings, roof trusses, stairs, joints in woodwork, with a large number of specimens of stone, terra cotta, molded bricks, etc., are found in the architectural museum, together with some interesting Norwegian, Indian, and Japanese art works.

A fine collection of 20,000 engravings, photographs, and photoprints, mounted on cards eleven by fourteen inches, is placed in the drawing rooms, classified according to the Dewey decimal system, for use in construction, history of

architecture, and designing, and forms a most valuable working library for draftsmen and designers.

An electric arc lantern is permanently placed in a special lecture room with stepped floor. For use with it, there are 2,500 lantern slides, illustrating the history of architecture, in all countries, and especially in the United States.

The University has an excellent working library in architecture and building, and the department has a fine collection of books for use in architectural designing, placed in a room adjoining the drawing rooms.

Apparatus is provided for making tests in heating and ventilation, and for making photographs and lantern slides.

The department also possesses a large collection of working drawings, from the offices of noted architects, of residences, offices, United States buildings, and especially of the more important structures of the World's Columbian Exposition.

The course in architecture makes a specialty of architectural drawing, rendering, and design.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Architecture

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4) ; Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1) ; Free-hand Drawing or Modeling (Arch. 20 or 21) ; French 5, or German B or 1 or 4, or English 1 ; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6) ; Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2) ; Free-hand Drawing (Arch. 20 or 21) ; French 5, or German 2 or 6, or English 2; Military 2; Physical Training, 1, 3.

Second Year

1. Applied Mechanics (Theo. and App. Mech. 4) ; Wood Construction (Arch. 2) ; The Orders of Architecture (Arch. 8) ; Physics 1, 3; Monthly Problems (Arch. 9) ; Rhetoric 2; Military 2.

2. Strength of Materials (Theo. and App. Mech. 5); Masonry and Metal Construction (Arch. 3); Requirements and Planning of Buildings (Arch. 15); Physics 1, 3; Monthly Problems (Arch. 9); Rhetoric 2; Military 2.

Third Year

1. History of Architecture (Arch. 6); Details of Styles (Arch. 7); Architectural Seminary (Arch. 11); Sanitary Construction (Arch. 4); Architectural Designing (Arch. 17); Chemistry 1, or Economics 1a; Monthly Problems (Arch. 9).

2. History of Architecture (Arch. 6); Details of Styles (Arch. 7); Architectural Seminary (Arch. 11); Graphic Statics and Roofs (Arch. 5); Architectural Perspective (Arch. 14); Architectural Composition (Arch. 18); Monthly Problems (Arch. 9).

Fourth Year

1. Superintendence (Arch. 12a); Estimates (Arch. 12b;) Specifications (Arch. 12c); Heating and Ventilation (Arch. 13); Renaissance Design (Arch. 22); Gothic Design (Arch. 23); Romanesque Design* (Arch. 24).

2. Working Drawings (Arch 10); Residence Design (Arch. 16); Design of Ornament (Arch. 25); Surveying (Civil Eng'g 10); Thesis.

ARCHITECTURAL ENGINEERING

This course of study prepares graduates for professional employment as architects, structural designers and computers, as well as superintendents of construction. It is intended for students who prefer the structural and mathematical side of the profession to its artistic side, and who desire to pursue the full engineering course in mathematics and to acquire a thorough knowledge of the iron and steel construction now employed in buildings. It differs from the architectural course principally in the addition of a second year of mathematics and of a year of civil engineering study in bridge analysis and design, and in devoting considerably less time to architectural drawing and designing.

*A second term in Arch. 22 will be accepted in lieu of Arch. 23 or Arch. 24.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Architectural Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1, or Free-hand Drawing or Modeling (Arch. 20 or 21); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3 or 7.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); Shop Practice (Mech. Eng'g 1), or Free-hand Drawing (Arch. 20 or 21); French 5, or German 2 or 6, or English 2; Military 2; Physical Training 1, 3 or 7.

Second Year

1. Differential Calculus (Math. 7); Wood Construction (Arch. 2); The Orders of Architecture (Arch. 8); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Masonry and Metal Construction (Arch. 3); Requirements and Planning of Buildings (Arch. 15); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and App. Mech. 1, 2a); History of Architecture (Arch. 6); Architectural Seminary (Arch. 11); Sanitary Construction (Arch 4); Chemistry 1.

2. Resistance of Materials, Hydraulics (Theo. and App. Mech. 2b, 3); History of Architecture (Arch. 6); Architectural Seminary (Arch. 11); Graphic Statics and Roofs (Arch. 5); Chemistry 16; Electrical Engineering (Elect. Eng'g 1).

Fourth Year

1. Superintendence (Arch. 12a); Estimates (Arch. 12b); Specifications (Arch. 12c); Heating and Ventilation (Arch. 13); Architectural Engineering (Arch. 19); Bridge Analysis and Details (Civil Eng'g 12, 13).

2. Working Drawings (Arch. 10); Residence Design (Arch. 16); Bridge Details and Design (Civil Eng'g 13, 14); Surveying (Civil Eng'g 10); Thesis.

CIVIL ENGINEERING

The design in this department is to furnish a course of theoretical instruction, accompanied and illustrated by a large amount of practice, which will enable the student to enter intelligently upon the various and important duties of the civil engineer. While the instruction aims to be practical by giving the student information and practice directly applicable in his future professional work, the prime object is the development of the mental faculties. The power to acquire information and the ability to use it are held to be of far greater value than any amount of so-called practical knowledge.

EQUIPMENT

This department has an extensive equipment of compasses, engineers' transits, solar transits, levels,—ordinary and precise,—plane tables, sextants, chronometers, barometers, etc. For the lecture-room, the department is provided with full-size joints of an actual railroad bridge, sections of columns, eye-bars, etc., and a large collection of lithographs, photographs, and blue-prints of bridges and buildings.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Civil Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 1, 3); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); Shop Practice (Mech. Eng'g 1); French 5, or German 2 or 6, or English 2; Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Land Surveying and Topographical Drawing (Civil Eng'g 1, 2); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math 9); Topographical Surveying, and Transit Surveying and Leveling (Civil Eng'g 2, 3); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics, and Resistance of Materials (Theo. and App. Mech. 1, 2); Railroad Engineering (Civil Eng'g 4); Chemistry 1; Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and App. Mech. 2, 3); Graphical Statics and Roofs (Arch. 5); Road Engineering (Mun. and San. Eng'g 1); Descriptive Astronomy (Astron. 4); Steam Boilers (Mech. Eng'g 17).

Fourth Year

1. Bridge Analysis, and Bridge Details (Civil Eng'g 12, 13); Masonry Construction (Civil Eng'g 5); Water Supply Engineering (Mun. and San. Eng'g 2); Practical Astronomy (Astron. 6); Thesis.

2. Bridge Details, and Bridge Design (Civil Eng'g 13, 14); Sewerage (Mun. and San. Eng'g 3); Railroad Structures (Civil Eng'g 17); Tunneling (Civil Eng'g 15), or Geodesy (Civil Eng'g 6); Economics 2 or 8; Engineering Contracts and Specifications (Civil Eng'g 16); Thesis.

ELECTRICAL ENGINEERING

INSTRUCTION

This is a course in theoretical and applied electricity. It extends through four years. The first two years are substantially the same as in the other engineering courses. In the last two years the course includes the fundamental subjects in theoretical and applied mechanics and steam engineering, but a large part of the time is given to courses in electricity and its applications. The features of the instruction are the facilities offered for laboratory work by the student; the work done in calculating, designing, and making working drawings of electrical apparatus; the senior thesis requirements and facilities offered for original work.

EQUIPMENT

A recitation room, drafting room, seminary room, and the main office, are in Engineering Hall. The dynamo lab-

oratory, large lecture room, special testing and thesis rooms, battery room, photometry rooms, students' shop, and instructor's office are in Mechanical and Electrical Engineering Laboratory.

The six large pier-rooms of the department of physics are used for advanced electrical and magnetic measurements. These rooms, with their equipment, are described in more detail under the equipment of the physics department. The drafting and seminary rooms are well lighted and supplied with every convenience. The seminary room is accessible to members of the senior class at all times. It contains files of the leading journals of theoretical and applied electricity in English, French, and German, besides a department reference library.

The dynamo laboratory is equipped with various types of continuous current dynamos and motors, alternators, and transformers, with apparatus and every convenience for making complete tests. Included in this equipment are a 300-light Thomson-Houston alternator, a 40-horse power Westinghouse two-phase induction motor, Brush and Thomson-Houston arc light machines, Edison, Westinghouse, and Jenney 500-volt motors, a complete electric car equipment for testing purposes, a Jenney 220-volt dynamo, Edison (two machines), Thomson-Houston, Weston, United States, and other 110-volt dynamos; also two small Westinghouse alternators, and a number of fan and battery motors.

A marble switchboard, consisting of eight large panels, has been designed with special reference to facilitating the work in the laboratory. From it can be distributed to all parts of the building alternating and continuous currents of various electromotive forces. Connection can easily be made to the various circuits of the University lighting plant, and to the storage battery. There are two large cabinets of instruments for laboratory use. Among them are Weston ammeters, voltmeters, and wattmeters, Whitney, Hoyt, and Queen ammeters, Ayrton and Perry ammeters and voltmeters, Cardew and Queen voltmeters, Siemens dynamometers,

Kelvin balances, electrostatic voltmeters, Shallenberger, Thomson, and Shaeffer recording meters, hysteresis meters, electrometers, condensers, inductive and non-inductive resistances, lamp, german-silver, carbon, and water rheostats, a Brackett cradle dynamometer, tachometers, revolving contact makers, and other devices and appliances which are essential to the thorough experimental study of direct and alternating currents.

A standardizing laboratory is equipped for accurately measuring current and electromotive force, thus permitting at all times ready calibration of the instruments used in the laboratory.

An experimental telephone and signaling line has been erected, and several sets of receivers and transmitters have been provided for testing purposes.

A high potential testing transformer, with a specially designed electrically heated oven, and other accessory apparatus, facilitate disruptive tests on insulators and insulating materials.

The photometry rooms are supplied with two electric light photometers, one of which is the latest type of Kruess-Bunsen apparatus fitted with a standard Hefner lamp and various accessories. There are numerous types of incandescent lamps and of continuous and alternating arc lamps, and various conveniences for making candle power, life, and efficiency tests are provided.

The battery room contains a collection of primary cells, and over 90 cells of secondary battery, including several makes, fitted with switchboard and testing conveniences.

The work-shop, shared in common with the department of physics, is supplied with an engine-lathe, a speed lathe, a Universal milling machine, a grinder, etc., and a line of fine tools. An electric motor furnishes power for this shop. The services of an experienced mechanician enable the department to manufacture special apparatus as required.

The University electric lighting and power plant is available for tests by the department. It consists of two West-

inghouse two-phase alternating current dynamos, one of 75-kilowatt and one of 45-kilowatt capacity, with four induction motors, having a combined output of 100 horse power; a 30-kilowatt 500-volt constant potential generator with six motors, and a Wood series arc light machine for lighting the grounds and Military Hall. The transformer capacity of the alternating plant is for seven hundred 16-candle power incandescent lamps. The prime motors for the plant are 100 horse power and 50 horse power Ideal steam engines, and a 50 horse power Westinghouse steam engine.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Electrical Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); Shop Practice (Mech. Eng'g 1); French 5, or German 2 or 6, or English 2; Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Elements of Machine Design (Mech. Eng'g 4); Physics 1, 3, 10; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and Appl'd Mech. 1, 2a); Mechanism (Mech. Eng'g 5); Chemistry 1; Electrical and Magnetic Measurements (Physics 4); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Mechanical Engineering Laboratory (Mech. Eng'g 13); Steam Boilers (Mech. Eng'g 17); Elements of Dynamo Machinery (Elect.

Eng'g 11); Electrical and Magnetic Measurements (Physics 4); Elective: Mathematics 16, or Chemistry 3b, or Civil Engineering 10 (three semester-hours).

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical Engineering Laboratory (Elect. Eng'g 3); Electrical Design (Elect. Eng'g 4); Photometry (Elect. Eng'g 5); Telegraphy and Telephony (Elect. Eng'g 6); Electric Wiring and Distribution (Elect. Eng'g 8); Seminary (Elect. Eng'g 10); Thesis; Elective (two semester-hours): Electrical Engineering 7.

2. Alternating Currents and Machinery (Elect. Eng'g 12); Alternating Current Laboratory (Elect Eng'g 13); Electrical Design (Elect. Eng'g 14); Transmission of Power (Elect. Eng'g 15); Electric Lighting, Central Stations (Elect. Eng'g 9); Seminary (Elect. Eng'g 10); Advanced Electrical Measurements (Physics 9); Thesis.

MECHANICAL ENGINEERING

It is the object of this course to give the student a thorough training in the theoretical principles underlying the science of machines and mechanics, and at the same time to enable him to become practically familiar with some of the numerous applications of these principles.

EQUIPMENT

The equipment of this department is arranged for work under three heads—class and drawing room work, laboratory work, and shop practice.

The *drawing rooms* are equipped with modern desks, boards, filing cabinets, card indexes, reference books, catalogues, odontographs, gear charts, tables, etc. In the cabinet rooms are kinematic models and sectioned steam specialties, many of which were donated by the manufacturers.

The *steam engineering laboratory* is in the *Mechanical and Electrical Engineering Laboratory.* It contains the lighting and power plant of the University, consisting of one 50 horse-power Ideal single-cylinder, high-speed engine,

one 50 horse-power Westinghouse engine, and one 100 horse-power Ideal tandem compound engine. These engines are supplied with high pressure steam through an independent main to the boilers.

There are five other experimental steam engines, connected by independent steam main to the boilers. There are also gas engines, air compressors, a volume fan, steam pumps, a hot air engine, and numerous steam specialties arranged for experimental tests.

The laboratory contains a large assortment of the usual instruments for testing purposes. A four-ton traveling crane of 20-foot span covers the central floor space.

The boiler room of the new central heating station contains one vertical boiler, one 100 horse-power horizontal tubular boiler, equipped with Brightman mechanical stoker, one 250 horse power National water tube boiler, equipped with the Murphy furnaces, two 220 horse-power Babcock & Wilcox boilers, equipped with the Roney mechanical stokers, together with all necessary accessory apparatus, all available for testing purposes. The pumping station and power plants of the two cities furnish additional opportunities for experimental work.

Considerable apparatus designed for use on locomotive road tests has been constructed and arrangements have been made for regular tests of locomotives in actual service. The department now owns with the P. & E. Division of the C., C., C. & St. L. Ry. a fully equipped dynamometer car, No. 609. This car has been designed and built for locomotive and railway tests, and is used for no other purpose. It has sleeping accommodations for four persons. It is designed with special reference for the following service:

1. Locomotive road tests for economy.

2. Measurements of train resistance and of hauling capacity of locomotives.

3. Automatic track inspection for line and grade.

4. Airbrake service inspection.

5. Stationary plant tests at Railway Shops.

The machine shop, foundry, and forge shop are located in the Metal Shops.

The *machine shop* contains one twenty-seven-inch by twelve-foot bed F. E. Reed & Co. engine lathe; one twenty-one-inch by fourteen-foot bed Putnam Standard Engine lathe; twelve engine lathes of from twelve- to twenty-inch swing; two ten-inch speed lathes; one centering lathe; one fifteen-inch Gould & Eberhardt shaper; one fifteen-inch Hendey shaper; one No. 3 Brown & Sharpe plain milling machine; one Brainard universal milling machine; one twenty- by twenty-inch by five-foot Putnam planer; one thirty- by thirty-inch by eight-foot G. A. Gray & Co., planer; one No. 2 improved Brown & Sharpe universal grinding machine; one Brown & Sharpe cutter and reamer grinder; one No. 1 Bickford radial drill; one twenty-eight-inch drill press; one twenty-inch drill press; one sensitive drill press; one water emery tool grinder; one center grinding machine; one Stover power hack saw; one Worcester twist drill grinder; complete set of United States standard taps and dies, drills, arbors, reamers, gear and milling cutters, caliper gauges, calipers, scales, and other small tools.

The *wood shop* occupies the first floor of the Wood Shops and Testing Laboratory, and contains twenty-six improved wood-working benches, fourteen of which are fitted with Wyman and Gordon patent vises; one thirty-four-inch F. H. Clement & Co. band saw; one thirty-six inch Yerkes & Finan band saw; one twenty-inch Clement & Co. band saw; one thirty-six inch Yerkes & Finan band saw; one twenty-inch Clement & Co. wood planer; one J. A. Fay & Co. jig-saw; one J. A. Fay & Co. jointer; eight ten-inch wood lathes; one eighteen-inch pattern-makers' lathe; one No. 4 E. Fox trimmer, together with a complete equipment of small tools.

The *foundry* occupies a room 48 by 48 feet in the Metal Shops, and is equipped with a twenty-four-inch Whiting patent cupola, a core oven, and the necessary sand, ladles, and flasks for making castings. A No. 7 Buffalo steel pressure fan furnishes blast for the cupola.

The *forge shop* occupies a room 36 by 48 feet in the Metal Shops, and contains ten latest improved Buffalo down-draft forges. Blast is furnished these forges by a No. 5 Sturtevant pressure blower, and all gases of combustion are exhausted under ground by means of a No. 9 Sturtevant exhaust fan.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Mechanical Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); French 5, or German B or 1 or 4, or English 1; Shop Practice (Mech. Eng'g 1); Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); French 5, or German 2 or 6, or English 2; Shop Practice (Mech. Eng'g 1); Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

2. Integral Calculus (Math. 9); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and Appl'd Mech. 1, 2a); Chemistry 1; Power Measurements (Mech. Eng'g 3); Mechanism (Mech. Eng'g 5); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and Appl'd Mech. 2b, 3); Chemistry 16; Power Measurements (Mech. Eng'g 3); Steam Boilers (Mech. Eng'g 17); Electrical Engineering (Elect. Eng'g 1); Surveying (Civil Eng'g 10).

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Heat Engines (Mech. Eng'g 6); High-Speed Steam Engines and Valve Gears (Mech. Eng'g

14); Advanced Designing (Mech. Eng'g 9); Advanced Mechanical Laboratory (Mech. Eng'g 12; Seminary (Mech. Eng'g 19); Thesis.

2. Mechanics of Machinery (Mech. Eng'g 8); Graphical Statics of Mechanisms (Mech. Eng'g 18); Estimates (Mech. Eng'g 10); Advanced Designing (Mech. Eng'g 9); Advanced Mechanical Laboratory (Mech. Eng'g 12); Seminary (Mech. Eng'g 19); Thesis.

RAILWAN ENGINEERING

The railroad interests of the State of Illinois, as well as of the United States, have become so important as to demand a separate recognition in the courses of those educational institutions which offer instruction in engineering.

Wishing to meet the demand for specialization along this important line the University has established an undergraduate course leading to the degree of B. S. in *Railway Engineering*, and also provides for graduate instruction and investigation in this department leading to a second degree.

Three leading railroads of the state have promised their coöperation in the work of the department. The department of civil engineering already furnishes special instruction relating to construction and maintenance of way. In this new course the purpose is to pay more attention to the problems of motive power and machinery, including construction, design and operation of locomotives and rolling stock, as well as tests of fuel, water supply, materials, and supplies.

EQUIPMENT

The shops and laboratories of the departments of mechanical and electrical engineering, applied mechanics and chemistry furnish abundant laboratory facilities along these special lines.

A dynamometer car is now owned by this department and the P. & E. Division of the C., C., C. & St. L. Ry. (see p. 87).

The department is rapidly acquiring a considerable amount of class room and laboratory material, such as photo-

graphs, blue prints and samples of manufactured specialties of value to the students of this work.

The completion of the new railway shops of the P. & E. Div. of the C., C., C. & St. L. Ry. at Urbana furnishes exceptional opportunities for inspection of construction and repair work, and the assured aid which this department will receive from the management of these shops cannot but be of considerable value to the student.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Railway Engineering

First Second and Third Years

Same as the course of instruction in mechanical engineering.

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Locomotive Engines (Ry. Eng'g 1); Locomotive Engine Design (Ry. Eng'g 2); Shop Systems (Ry. Eng'g 3); Locomotive Road Tests (Ry. Eng'g 4); Seminary (Mech. Eng'g 19); Thesis.

2. Mechanics of Machinery (Mech. Eng'g 8); Compressed Air in Railway Service (Ry. Eng'g 5); Railway Estimates (Ry. Eng'g 6); Advanced Designing (Ry. Eng'g 7); Dynamometer Car Tests (Ry. Eng'g 8); Seminary (Mech. Eng'g 19); Thesis.

MUNICIPAL AND SANITARY ENGINEERING

This course is designed for students desiring to make a specialty of city engineering work. It prepares for the varied duties of engineer of the department of public works of cities and includes instruction in modern methods of sanitation of cities.

INSTRUCTION

Instruction is given by lectures, by text-book and seminary work, and by field, laboratory, and drafting work. The methods of training are intended to develop power to take up and solve new problems connected with municipal public works, as well as to design and to superintend the ordinary constructions. Surveying, structural materials, and struc-

tural design are taught as in the civil engineering course. Chemistry, botany, and bacteriology, so far as necessary to a comprehension of the questions involved in water supply and sewage disposal, are given.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Municipal and Sanitary Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering and Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); French 5, or German B or 2 or 6, or English 2; Military 2; Physical Training, 1, 3.

Second Year

1. Differential Calculus (Math. 7); Land Surveying and Topographical Drawing (Civil Eng'g 1, 2); Physics 1, 3; Rhetoric 2; Military 2.

2. Drawing and Surveying (Civil Eng'g 2, 3); Integral Calculus (Math. 9); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics, and Resistance of Materials (Theo. and Appl'd Mechanics 1, 2a); Physics Bacteriology (Mun. and San. Eng'g 5a); Chemistry 1a; Railroad Engineering (Civil Eng'g 4a); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and Appl'd Mech. 2b, 3); Road Engineering (Mun. and San. Eng'g 1); Graphic Statics and Roofs (Arch. 5); Chemistry 3a; Steam Boilers (Mech. Eng'g 17); Electrical Engineering 1.

Fourth Year

1. Bridges (Civil Eng'g 12, 13); Chemistry 20; Masonry Construction (Civil Eng'g 5); Water Supply Engineering (Mun. and San. Eng'g 2); Thesis.

2. Bridge Design (Civil Eng'g 13, 14a); Engineering Contracts and Specifications (Civil Eng'g 16); Mechanical Engineering Lab-

oratory (Mech. Eng'g 13); Sewerage (Mun. and San. Eng'g 3); Water Purification, Sewage Disposal, and General Sanitation (Mun. and San. Eng'g 6); Thesis.

PHYSICS

The courses in this department are designed to furnish the student who intends to follow the profession of engineering, science teaching, or research in physical science, with a knowledge of the phenomena and laws of physics.

EQUIPMENT

The rooms devoted to physics are in Engineering Hall. They include a large lecture room and cabinet, a large general laboratory and cabinet, several small laboratories, a constant-temperature room, a battery room, a workshop, and several private studies, laboratories, and offices.

The *lecture room* is in the form of an amphitheater, and is furnished with opera chairs provided with tablet arms. Piers at the lecture desk and in the center of the room make demonstrations with the more delicate apparatus possible. A permanent screen and rolling blinds operated by a motor facilitate illustration by lantern. The cabinet rooms adjoining the lecture room are supplied with apparatus suitable for illustration and demonstration, and are provided with conveniences for preparing apparatus for lectures.

The general laboratory is a room sixty feet square and is well lighted and ventilated. It is supplied with tables, shelves, and sinks, arranged for general experimental work. The cabinet room adjoining this laboratory contains the apparatus designed for elementary experimental work.

The *small laboratories,* six in number, are on the first floor, and are abundantly provided with masonry piers, wall shelves, sinks, dark curtains, etc. These rooms are now equipped with apparatus for electrical measurements. They contain a line of high-grade apparatus for advanced experimental work and research.

The *constant-temperature* room is on the first floor. It is isolated from the surrounding space by double masonry

walls and double doors. It is arranged for such experiments as require a low, uniform temperature.

The department shares a workship with the department of electrical engineering (see p. 85). This gives the department facilities for preparing special apparatus of use in advanced and original investigations.

In addition to the preceding, there are a number of private studies and laboratories for the use of advanced students and instructors.

THEORETICAL AND APPLIED MECHANICS

The courses in theoretical and applied mechanics are designed to meet the needs of students of the College of Engineering.

EQUIPMENT

The laboratory of applied mechanics is located in the Wood Shops and Testing Laboratory. It comprises the *materials laboratory* and the *hydraulic laboratory*.

The *materials laboratory* has an Olsen testing machine of 200,000 pounds' capacity, arranged to test beams twenty feet long; a Riehle testing machine of 100,000 pounds' capacity; apparatus for testing beams; Keep's dead-load and impact machines for cast iron; a Riehle wire-testing machine, extensometers and deflectometers, a stone-grinding machine, four rattlers for abrasion tests of stone and brick, with other apparatus for making all necessary measurements and observations, etc. The laboratory is fitted up as a working laboratory, where students may acquire such practice in experimental work as engineers are called upon to perform, as well as for the purpose of illustrating principles, and also for use in original investigation.

The *hydraulic laboratory* contains a steel standpipe connected with city water supply and having several openings, a steam pump, centrifugal pump, tanks, pits, scales, pressure gauges, hook gauges, meters, including a Venturi meter, water motor and other apparatus for experiments with orifices, tubes, weirs, pipes, hose, and nozzles. Experiments are made in connection with the regular class instruction.

COLLEGE OF SCIENCE

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
STEPHEN A. FORBES, PH.D., DEAN, Zoölogy.
THOMAS J. BURRILL, PH.D., LL.D., Botany and Horticulture.
SAMUEL W. SHATTUCK, C.E., Mathematics.
CHARLES W. ROLFE, M.S., Geology.
ARTHUR W. PALMER, SC.D., Chemistry.
FRANK F. FREDERICK, Art and Design.
SAMUEL W. PARR, M.S., Applied Chemistry.
DAVID KINLEY, PH.D., Economics.
ARNOLD TOMPKINS, PH.D., Pedagogy.
ALBERT P. CARMAN, SC.D., Physics.
GEORGE T. KEMP, M.D., PH.D., Human Physiology and Vertebrate Anatomy.
GEORGE W. MYERS, PH.D., Astronomy and Mathematics.
EVARTS B. GREENE, PH.D., History.
JACOB K. SHELL, M.D., Physical Training.
EDGAR J TOWNSEND, PH.M., Mathematics. [On leave.]
VIOLET D. JAYNE, A.M., English.
HARRY S. GRINDLEY, SC.D., Chemistry.
T. ARKLE CLARK, B. L., Rhetoric.
HERMAN S PIATT, PH.D., French.
ARTHUR H. DANIELS, PH.D., Philosophy.
CHARLES W. TOOKE, A.M., Public Law and Administration.
FRED A. SAGER, B.S., Physics.
FRANK SMITH, A.M., SECRETARY, Zoölogy.
JOHN E. MCGILVREY, A.B., Pedagogy.
CHARLES A. KOFOID, PH.D., Zoölogy.

Oscar Quick, A.M., Physics.
John P. Hylan, Ph.D., Psychology.
Jennette E. Carpenter, O.M., Physical Training for Women.
George A Huff, Jr., Coach of Athletic Teams.
Carlton R. Rose, Ph.M., Chemistry.
Agnes S. Cook, A.B., Rhetoric.
George H. Meyer, A.M., German.
William C. Brenke, B.S., Mathematics.
Charles T. Wilder, B.S., Photography.
Matthew B. Hammond, Ph.D., Economics and Sociology.
Henry L. Schoolcraft, A.M., History.
Neil C. Brooks, Ph.D., German.
Martha J. Kyle, A.B., Rhetoric.
Henry L. Coar, A.B., Mathematics.
Clendon V. Millar, M.S., Chemistry.
George P. Clinton, M.S., Botany.
George D. Hubbard, M.S., Geology.
Hubert V. Carpenter, B.S., Physics.
John L. Sammis, B.S., Chemistry.
Robert W. Stark, B.S., Chemistry.
Albert P. Sy, B.S., Chemistry.
Charles W. Young, B.S., Botany.
Stanley M. Lewis, Free-Hand Drawing.
Sarah L. Dewey, B.S., Fellow, Physiology.
Harry C. Coffeen, B.S., Fellow, Mathematics and Astronomy.
Alexander D. DuBois, Military Science.

AIMS AND SCOPE

The College of Science is based upon the idea that the methods of science and the branches of study to which those methods are applicable present a subject-matter and a discipline ample for the purposes of a liberal education, and that an education so derived differs materially in character and value from one whose sources are mainly literary. This College is distinguished in general from the technical col-

leges of the University by the fact that its choice of subjects is not limited by practical ends, and from the College of Literature and Arts by the predominance, in its courses and requirements, of the strictly scientific subjects. It is articulated with the latter, however, by the liberal elections from the literary courses permitted to students who have satisfied its demands as to scientific work, and by the special courses in science open to election by students from the companion college.

It affords an opportunity for the study of the natural, physical, mathematical, and mental sciences, and of economic, sociological, and philosophical subjects, either as specialties or as the substance of a general education. The candidate for graduation may take a year each in any four of the principal subjects of this College, with a considerable amount of language, literature, and general study; he may concentrate his major work on any one of the several subjects in which major courses are offered; or he may adopt any program of concentration of his major work intermediate between these extremes. The subjects presented in this College are accordingly arranged in four groups,—chemical and physical, mathematical, natural science, and philosophical,—each characterized by the predominant importance and development of the subjects indicated by its name. The studies of each group are again divided into required and elective subjects, and the latter are further subdivided into two lists, A and B. All the required subjects are necessary to graduation in the group of studies specified; those of the elective lists A and B are open to election, restricted only by certain general requirements, varying in the different groups, regarding the amount and distribution of the work to be done on them.

It is the purpose of this system of classification and requirement to permit large liberty of choice with respect both to main lines of study and to associated or secondary subjects, and at the same time so to guide the student's elections that his course of study shall always contain a central

core or axis of closely articulated major work. Preference is further given by this means to those minor subjects most important because of their relations to the major work elected.

The only degree given in this College is that of bachelor of science. University credit to the amount of one hundred and thirty hours* is required for graduation. Ten of these may be earned by investigation work, the results of which are to be presented in a final thesis. Credit will be given for fractions of courses of instruction in exceptional cases only, by vote of the college faculty.

The attention of women students is especially called to the courses outlined under "household economics," p. 165. These courses count for credit for students in either the chemical or the natural science group.

EQUIPMENT

Laboratories.—The College of Science occupies three of the University buildings—the Chemical Laboratory, Natural History Hall, and the Astronomical Observatory—together with several rooms in University Hall assigned to the mathematical department and to some of the departments of the philosophical group. The physics laboratories and lecture room are in Engineering Hall, and the natural history museum is in University Hall.

The laboratory and library facilities of this College have been acquired with primary reference to the needs of the undergraduate student, and are scarcely surpassed, for their purpose, in grade and completeness, among American universities. The graduate student likewise finds here an ample equipment, material, and opportunity for independent investigation in several departments of study, notably in those covered by the operations of the State Laboratory of Natural History and of the State Entomologist's office.

*For definition of "hours" see p.167.

THE CHEMICAL AND PHYSICAL GROUP

AIMS

The purposes of the chemical and physical group are:

1. To provide a training in the principles of chemistry and physics as part of a liberal education.

2. To furnish such instruction and training in these sciences as is requisite for the successful prosecution of studies in other sciences, i. e., biology, physiology, geology, agriculture, sanitary engineering, electrical engineering, domestic economy, etc.

3. To afford opportunity for the acquisition of the technical knowledge and skill needed in the applications of chemistry in the industrial world by the analytical chemist and expert, the manager of chemical and metallurgical industries, or the scientific and manufacturing pharmacist.

4. To meet the demands of those who are preparing themselves as teachers of chemistry and physics.

5. To lay the foundation for a career as investigator in chemistry or in physics.

Suggestions as to choice of courses.—The courses in chemistry and in physics, which are outlined on pages 103 and 107, include lists of electives which afford opportunities for extensive range in selection of options, so that it is possible to arrange numerous combination courses directed to various specific ends.

One intending to teach chemistry and physics should take all the prescribed work of the chemical course, selecting numbers 7 and 12 among his chemical electives and taking also physics 5 or 6 and mathematics 4; he can then fill out the rest of his restricted and open electives by choice of studies from the natural science group or make choice of subjects in languages and literature, etc.; or, if he wish to devote himself more fully to physics, he should take the chemical-physical course as outlined on page 108.

A course preparatory to the study of medicine may be

arranged by taking the prescribed work of the chemical course, amounting to 81 hours' credit, selecting among the chemical electives toxicology, urinalysis, and sanitary analysis, and for the other electives taking art and design, bacteriology (botany 5), biology 1, physiology 4, psychology 2, zoölogy 2 and 3. The completion of this course will enable the student to obtain credits amounting to one year's work upon the four years' medical course at the School of Medicine of the University of Illinois, and will prepare him for specialization in medical and physiological chemistry.

Students of chemistry who intend to become commercial analysts should include among their chemical electives 5c, 8, 10, 6b, 15a, b, c, 18a, 24, 25, take bacteriology (botany 5 or 6), mineralogy 1a, and fill out the rest of their electives by selection of subjects from the natural science group.

EQUIPMENT FOR CHEMISTRY

Laboratories.—The Chemical Laboratory is 75 by 120 feet and three stories high, including basement. The basement contains the water survey laboratory and rooms for storage and dispensing, and for work in assaying and metallurgical chemistry. The first floor has a lecture room and laboratory for general chemistry and qualitative analysis, each of which accommodates 150 students; a large private laboratory, and a store room. The second floor has a laboratory for quantitative analysis and organic chemistry, a balance and reading room, and a large private laboratory.

Several recitation rooms used by this department, and rooms for special work in physical chemistry are in University Hall.

Apparatus.—The laboratories are furnished with all of the supplies required for the various lines of work in pure and applied chemistry.

The apparatus for general use, all of which is new and of the most improved pattern and construction, includes thirty-two high grade analytical Sartorius and Troemner balances, an abundant supply of platinum ware, including combustion

tubes and a large retort for making pure hydrofluoric acid, Kahlbaum's mercurial air pumps, Schmidt and Haensch saccharimeters of three different styles, complete sets of Hofmann's and Lepsius's apparatus for lecture demonstrations, Orsat's and Hempel's apparatus for gas analysis, microscopes, spectroscopes, apparatus for electrolytic analysis, etc.; for work in physical chemistry there are thermostats, Abbe's and Pulfrich's refractometers, Krüss's universal spectral apparatus with all attachments, two calorimetric bombs, one of which is lined with platinum, Beckmann's apparatus, Dumas', Hofmann's, and Meyer's vapor density apparatus, apparatus for determination of electrical conductivities. The laboratory is provided with its own dynamo, a large storage battery, and an excellent projection lantern.

A very important feature of the equipment consists of the chemical library, which, in addition to all the modern, standard chemical texts, dictionaries, and encyclopedias, includes complete sets of nearly all the more important chemical journals, especially the German and the English. The current numbers of many others are regularly received.

EQUIPMENT FOR PHYSICS

For the equipment in physics see p. 94.

CHEMICAL COURSES

CLASSIFICATION OF SUBJECTS

Prescribed

1. *Chemical.*—General Elementary Chemistry (Chem. 1); 5 hours.*
   Descriptive Inorganic Chemistry (Chem. 2a); 3 hours.
   Inorganic Preparations (Chem. 2b); 3 hours.
   Organic Chemistry (Chem. 9, 9a, 14); 7½ hours.
   Qualitative Analysis (Chem. 3a); 5 hours.
   Quantitative Analysis (Chem. 5a); 5 hours.
   Seminary (Chem. 19); 4 hours.
2. *General.*—Advanced Algebra and Trigonometry (Math. 1, 3, or 2, 4); 5 hours.

*For explanation of "hours" see p. 167.

German B or 1, 3, 4, 6; 20 hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 1, 3; 10 hours.
Rhetoric 2; 6 hours.

Elective

First Semester—
Assaying (Chem. 15b); 2 hours.
Metallurgical Chemistry (Chem. 15a); 3 hours.
Sanitary Analysis (Chem. 10); 3 to 5 hours.

Second Semester—
Chemical Technology (Chem. 6a); 3 hours.
Electrolytic Analysis (Chem. 15c); 3 hours.
Food Analysis (Chem. 5c); 2 to 10 hours.
Household Chemistry (Chem. 23); 5 hours.
Industrial Chemistry (Chem. 17); 3 hours.
Iron and Steel Analysis (Chem. 8); 5 hours.
Mineral Analysis (Chem. 5b); 3 to 10 hours.
Metallurgy (Chem. 6b); 3 hours.
Theoretical Chemistry (Chem. 12); 3 hours.

Either Semester—
Agricultural Chemistry (Chem. 13); 5 or 10 hours.
Proximate Organic Analysis (Chem. 21); 3 to 10 hours.
Physical Chemistry (Chem. 7); 3 to 10 hours.
Special Advanced Courses (Chem. 18a, b, c); 1 to 10 hours.
Thesis Investigation (Chem. 11); 5 to 15 hours.
Toxicology (Chem. 24); 2 to 5 hours.
Urinalysis (Chem. 25); 2 hours.

REQUIREMENTS FOR GRADUATION

In order to graduate in chemistry, the candidate must complete all the required courses (81 hours), and must have at least 13 hours additional for subjects chosen from the list of chemistry electives. For the remaining 36 hours he must choose 18 hours of chemical electives and for the other 18 hours must choose subjects from any University offerings, subject to the approval of the head of the

department of chemistry. He must make in all 130 hours' credit, and present an acceptable thesis.

Special exceptions as to the required number of chemical options may be made for those who desire to prepare themselves as teachers of chemistry rather than as technical chemists, and for those who in preparing for the study of medicine wish to take major work in chemistry.

COURSE OF INSTRUCTION

For the Degree of B.S. in Chemistry

First Year

1. General Elementary Chemistry (Chem 1); German B or 1 or 4; Mathematics 1, 3 or 2, 4; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Descriptive Inorganic Chemistry (Chem. 2a); German B or 3 or 6; Inorganic Preparations (Chem. 2b); Qualitative Analysis (Chem 3a); Military 2; Physical Training 1, 3 or 7.

Second Year

1. German 4; Physics 1, 3; Quantitative Analysis (Chem. 5a); Rhetoric 2; Military 2.

2. German 6; Organic Chemistry (Chem. 9 and 9a); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Organic Chemistry, special chapters (Chem. 14); Rhetoric 2; Seminary (Chem. 19); Electives.

2. Rhetoric 2; Seminary (Chem. 19); Electives.

Fourth Year

1. Seminary (Chem. 19); Electives.
2. Seminary (Chem. 19); Electives.

APPLIED CHEMISTRY AND ENGINEERING

To meet the needs of those who wish to fit themselves for such work as devolves upon the managers of establishments in which the operations depend upon chemical processes, a four years' course in chemistry with related engineering subjects has been arranged.

REQUIREMENTS FOR GRADUATION

The requirements for graduation, as indicated on pages 104 and 105, are modified as follows: The electives to be chosen from the list must include chemistry 6a and 6b, 8, and 15 (a); general engineering drawing 1, two subjects listed under mathematics, four under mechanical engineering, and two under mechanics, theoretical and applied.

A thesis is required, and completion of the work leads to the degree of bachelor of science in chemistry and engineering.

COURSE OF INSTRUCTION BY YEARS AND SEMESTERS

The prescribed and chemical electives, together with the engineering subjects necessary to meet the above conditions, are indicated below.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Chemistry and Engineering

First Year

1. Drawing (Gen. Eng'g 1a, 1b); General Chemistry (Chem. 1); German B or 1 or 4; Mathematics 1, 3 or 2, 4; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Descriptive Inorganic Chemistry (Chem. 2); Qualitative Analysis (Chem 3a); German B or 3 or 6; Military 2; Physical Training 1, 3 or 7.

Second Year

1. Differential Calculus (Math. 7); German 4; Physics 1, 3; Quantitative Analysis (Chem. 5a); Rhetoric 2; Shop Practice (Mech. Eng'g 1); Military 2.

2. Chemical Technology (Chem. 6); Integral Calculus (Math. 9); German 6; Iron and Steel Analysis (Chem. 8); Physics 1, 3; Rhetoric 2; Shop Practice (Mech. Eng'g 1); Military 2.

Third Year

1. Analytical Mechanics (Theo. and Appl'd Mech. 1 or 4); Metallurgical Chemistry and Assaying (Chem. 15a); Metallurgy (Chem. 6b); Seminary (Chem. 19); Shop Practice (Mech. Eng'g 2); Steam Engines (Mech. Eng'g 16).

2. Electrical Engineering 1; Electro Chemistry (Chem. 15b); Organic Chemistry (Chem. 9); Resistance of Materials (Theo. and Appl'd Mech. 2 or 5); Seminary (Chem. 19); Steam Boilers (Mech. Eng'g 17); Shop Practice (Mech. Eng'g 2).

Fourth Year

1. Chemistry, special advanced subjects (selected from Chemistry 12, 15a, 17, 18, 19); Steam Engines (Mech. Eng'g 16); Thermodynamics (Mech. Eng'g 7); Thesis and Investigation (Chem. 11).

2. Chemistry, special subjects (selected from Chem. 15b, 18 (a) (d), 19; Steam Boilers (Mech. Eng'g 17); Thesis and Investigation (Chem. 11).

PHYSICAL COURSES

CLASSIFICATION OF SUBJECTS

Prescribed

Chemistry 1, 2; 8 hours.*
French 1, 2, 5; or German B or 1, 3, 6; 20 hours.
Mathematics 2 (Advanced Algebra); 3 hours.
Mathematics 4 (Trigonometry); 2 hours.
Mathematics 6 (Analytical Geometry); 5 hours.
Mathematics 7 (Differential Calculus); 5 hours.
Mathematics 9 (Integral Calculus); 5 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 1, 3; 10 hours.
Rhetoric 2; 6 hours.

Elective

List A (Physical)

Physics 5 and 6; 12 or 16 hours.
Physics 7; 6 or 10 hours.
Physics 8; 6 hours.
Mathematics 10 (Theory of Equations); 3 hours.
Mathematics 16 (Differential Equations); 3 hours.
Astronomy 4, 5; 5 to 10 hours.

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*For explanation of "hours" see p. 167.

List B (Chemical-Physical)

Physics 5 and 6; 12 or 16 hours.
Physics 7; 6 or 10 hours.
Chemistry 3a; 5 hours.
Chemistry 9, 9a; 5 hours.
Chemistry 5a; 5 hours.
Chemistry 5b; 3 or 5 hours.
Chemistry 12; 3 hours.
Chemistry 7; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

The foregoing courses have been arranged for those who wish to prepare themselves for special work in physics and allied sciences. In addition to the subjects of the prescribed list, two general lines of work are offered under elective lists A and B, one of which must be taken with the list of prescribed subjects. The advanced theoretical work of the first of these lines is largely general mechanical physics; that of the second more especially chemical. The laboratory work follows the same lines. The additional studies necessary to complete the number of hours required for graduation may be elected from the various University courses, with the approval of the head of the department of physics.

COURSE OF INSTRUCTION

For the Degree of B.S. in Physics

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); German B or 1 or 4; Chemistry 1; Rhetoric 2; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); German B or 3 or 6; Chemistry 2, 4; Chemistry 3a, or Rhetoric 2; Military 2; Physical Training, 1, 3 or 7.

Second Year

1. Physics 1, 3; Differential Calculus (Math. 7); Rhetoric 2; German 4, or Chemistry 5a; Military 2.

2. Physics 1, 3; Integral Calculus (Math. 9); Rhetoric 2; German 6, or Chemistry 5b; Chemistry 12; Military 2.

Third Year

Physics 5, 6; Mathematics 10, 16; Astronomy 4, or Chemistry 7; Electives.

Fourth Year

Physics 7, or Physics 7, 8; Electives.

It will generally be necessary to follow the above, but other arrangements consistent with sequences of courses may be made in special cases.

DESCRIPTION OF DEPARTMENTS

CHEMISTRY

The chemical offerings include courses of instruction in general elementary, inorganic, organic, physical, and theoretical chemistry, and several lines of qualitative and quantitative analysis. [See *Chemistry,* in DESCRIPTION OF COURSES, p. 183.]

The first year is devoted to the consideration of general descriptive inorganic chemistry and qualitative analysis, the first half of the second year is occupied with courses in quantitative analysis both gravimetric and volumetric, and the second half year is given to general organic chemistry. The work of these two years and that of the first half of the third year, which is devoted to more advanced organic chemistry, is prescribed for all students of the chemical courses, and is intended to impart a knowledge of the facts of chemistry, to develop skill and accuracy in manipulation, and to constitute a scientific grounding in the fundamental principles and laws of chemistry.

Aside from this prescribed work there are offered numerous electives in chemistry, which, by judicious selection, afford opportunity for specialization along any of the lines of analytical, pharmaceutical, technological, or pure chemistry.

In order that an acquaintance with chemical literature may be had, and to keep pace with the advances in chemistry, students of the third and fourth years are required to take part in the chemical seminary, in which the work con-

sists chiefly of reviews and discussions of assigned articles in current numbers of the various journals.

One or two semesters' work in the fourth year must be devoted to the investigation of some chemical problem. This practice furnishes an opportunity to specialize along some chosen line and serves as an introduction to the methods of chemical research.

To students who are preparing to become teachers of physical science opportunity is offered for the acquirement of some experience in supervising laboratory practice in elementary chemistry. The work includes criticism and discussion of methods and application of pedagogical principles and is conducted with the coöperation of the department of pedagogy.

APPLIED CHEMISTRY

In this department there are offered ten separate courses in technological subjects. These require as preliminary work the seven general and analytical courses. They may be further supplemented by special advanced work along some chosen line. Frequent visits are made to metallurgical and other works employing chemical processes.

PHYSICS

The department of physics offers a lecture course in general descriptive physics with class room experiments, extending through the year, and accompanied by an introductory laboratory course in physical measurements. This is followed by two courses, one experimental and the other theoretical. In the experimental course the student is trained in the most exact methods of making the fundamental physical measurements and taught how to discuss his results. The theoretical course running parallel to this discusses, with the aid of elementary calculus, the theory of some of the main subjects of physics. In the senior year the student is supposed to take up some special problem for investigation and to center his laboratory work about that. An advanced mathematical course is also offered for those who wish to follow the most advanced theories and results of the science.

THE MATHEMATICAL GROUP

AIMS

The mathematical group aims to lay the mathematical foundation for special work in any one of three lines, as well as to offer an opportunity for advanced work. It is hoped that the courses offered will meet the requirements of those who need mathematics as a tool as well as of those who wish to make it a specialty.

Parallel to the pure mathematics two lines of associated work in applied mathematics are offered, namely, in physics and astronomy. Either of these may be taken by the student wishing to graduate from this group. The one leads through the physics of the sophomore year to the mathematical theory of electricity and magnetism, heat, light, and sound; the other through surveying to celestial mechanics and general and mathematical astronomy. In addition to these, a course in astronomy and physics is offered, including the mathematics through the junior year, but leading to theoretical astronomy and advanced physics in the senior year.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

General Engineering Drawing 1a, 1b; 5 hours.*
Mathematics 6, 7, 9, 10, 11, 14, 16, 17; 31½ hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.

ELECTIVE

List A (Mathematics and Astronomy)

Mathematics 13, 23 or 12, 18, 24; 6 or 8 hours.
Mathematics 20, 21, 22, or Astronomy 9; 6 hours.
Mathematics 15, or Astronomy 10; 2 hours.

*For explanation of "hours" see p. 167.

Astronomy 4, 5, 6; 10 hours.
Physics 1,3; 10 hours.
Civil Engineering 10; 2 hours.
French 1, 2, 5; or German B or 1, 3, 4, 6; 20 hours.

List B (Mathematics and Physics)

Mathematics 13, 23, or Mathematics 12, 18, 24; 8 or 6 hours.
Mathematics 15; 2 hours.
Physics 1, 3, 5, 6; 20 hours.
French 1, 2, 5; or German B or 1, 3, 4, 6; 20 hours.

List C (Astronomy and Physics)

Astronomy 7, 9, or Mathematics 20, 21, 22; 6 hours.
Astronomy 4, 5, 6; 6 hours.
Astronomy 10; 4 hours.
Physics 1,3, 5, 6; 15 hours.
Civil Engineering 10; 3 hours.
German B or 1, 3, 4, 6; 20 hours.

List D

Anthropology 1; 3 hours.
Biology 1; 5 hours.
Botany 1, 2; 5 or 10 hours.
Chemistry 1, 3a or 3b, 4; 5 or 10 hours.
Economics 1 or 2 to 8, 11 to 17; 2 to 34 hours.
English 1, 2; 10 hours.
French 1, 5, 2; or German B or 1, 3, 4, 6; 20 hours.
Geology 1, 3; 5 to 15 hours.
History 1, 2; 2 to 10 hours.
Latin 1; 10 hours.
Library 12; 1 hour.
Mineralogy 1, 2; 5 or 10 hours.
Pedagogy 1 to 4; 5 to 20 hours.
Philosophy 1 to 8; 2 to 24 hours.
Physiology 4 or 1; 5 or 10 hours.
Psychology 1 to 5; 3 to 24 hours.
Public Law and Administration 1 to 7; 2 to 29 hours.
Theoretical and Applied Mechanics 1; 5 hours.
Zoölogy 1, 2, 7; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

To graduate as a bachelor of science in the mathematical group, it is necessary for the student to complete the

list of prescribed subjects, together with those of any one of lists A, B, or C of electives, and to present an acceptable thesis. The necessary number of 130 hours may then be made up by election from lists A, B, C, and D.

COURSES OF INSTRUCTION BY YEARS AND SEMESTERS

The studies of the mathematical group may best be taken according to the following outlines of courses in mathematics and physics, in mathematics and astronomy, and in astronomy and physics, respectively.

COURSE OF INSTRUCTION

For the Degree of B.S. in Mathematics and Physics

First Year

1. Plane and Spherical Trigonometry (Math. 3); advanced Algebra (Math. 1); Engineering Drawing 1a, 1b; French 1 or 5, or German B or 1 or 4; Military 1, 2; Physical Training 1, 3 or 7, 9; Rhetoric 2.

2. Analytical Geometry (Math. 6); French 1 or 5, or German B or 3 or 6; Military 2; Physical Training 1, 3 or 7; Rhetoric 2; Electives.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; French 2 or German 4; Military 2.

2. Integral Calculus (Math. 9); French 2 or German 6; Military 2; Physics 1, 3.

Third Year

1. Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Least Squares (Math. 14); Calculus of Variations (Math. 20); Physics 5; Electives.

2. Geometry of Space (Math. 17); Differential Equations (Math. 16); Physics 5; Electives.

Fourth Year

1. Modern Geometry (Math. 23) or Invariants (Math 12), or Theory of Functions (Math. 13); Theory of Potential and Spherical Harmonics (Math. 21, 22); Physics 6; Mathematical Seminary and Thesis (Math. 15); Electives.

2. Higher Plane Curves (Math. 18) or Algebraic Surfaces (Math. 24) or Theory of Functions (Math. 13); Physics 6; Mathematical Seminary and Thesis (Math. 15); Electives.

COURSES OF INSTRUCTION

For the Degree of B.S. in Mathematics and Astronomy

The freshman and sophomore years are the same as in the preceding scheme except that surveying (C. E. 10) is required the first year and that astronomy 4 takes the place of physics 1, 3, of the second semester, second year.

Third Year

1. Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Least Squares, (Math. 14); Calculus of Variations (Ast. 11); Astronomy 5; Electives.

2. Differential Equations (Math. 16); Astronomy 6; Geometry of Space (Math. 17); Electives.

Fourth Year*

1. Theory of Functions (Math. 13); Astronomy 7; Astronomy 10 or Math. 15; Electives.

2. Theory of Functions (Math. 13); Astronomy 9; Astronomy 10 or Math. 15; Electives.

COURSES OF INSTRUCTION

For the Degree of B.S. in Astronomy and Physics

Freshman and sophomore years same as before excepting that astronomy 4 is required in the sophomore year.

Third Year

1. Astronomy 5; Least Squares (Math 14); Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Calculus of Variations (Math. 20).

2. Astronomy 6; Differential Equations (Math. 16); Geometry of Space (Math. 17); Electives.

Fourth Year*

1. Astronomy 7; Physics 5, 6; Electives.

2. Astronomy 9; Physics 5, 6; Electives.

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*Astronomy 12 and 13 will be given in 1899-1900.

DESCRIPTION OF DEPARTMENTS

ASTRONOMY

The instruction given in astronomy is planned to meet the needs of four distinct classes of students, viz.: (a) those who do not wish to take the time necessary to become thoroughly familiar with the facts, principles, and methods of the science, but who desire a general acquaintance with its present state and some idea of how this state has been reached; (b) engineers whose work necessitates a practical knowledge of some parts of it; (c) those students of the College of Science who wish to specialize in the geological and biological sciences, and who require a more intimate acquaintance with astronomy than can be got in one term's work; (d) those students who wish to make astronomy their specialty.

In the first courses of instruction the work of the laboratory is subordinated to that of the recitation room, but as soon as the general notions of the science become fixed in his mind, the student is required to take data and solve practical problems in the Observatory. After the student has been given sufficient practice to enable him to comprehend and appreciate the more advanced subjects of theoretical astronomy, an opportunity is provided him to familiarize himself with these subjects by the lectures and work of the senior year.

For students of class (a) course 4, presupposing mathematics through trigonometry only, is offered; for the second, courses 4 and 6, requiring the same preliminary mathematics and a term's experience in practical work with instruments, is given; for the third, courses 4, 5, and 6, extending through four terms and requiring the same mathematical preparation as course 4; and for the fourth class, all astronomical courses from 4 to 13, inclusive, are offered. Courses 7 and 9 are to be given in alternate years with 12 and 13. The courses in astronomy 7, 9, and 10, as

also 12 and 13, count either as graduate or as undergraduate work, but neither set can count for both. The subjects treated in the astronomical seminary will be related to those considered in courses astronomy 7 and 9, and 12 and 13 respectively.

EQUIPMENT

The equipment of the astronomical department consists of a students' astronomical observatory, containing the following instruments:

An equatorial telescope of 12 inches aperture, the optical parts of which are by Brashear. The instrument was built and mounted by Warner & Swasey. It is provided with graduated circles, driving clock, filar micrometer, a complete set of positive and negative eyepieces, and a dial for setting in right ascension. The construction of the telescope is such that spectroscopic, or photographic, apparatus may be attached without further work on the mechanician's part; a new 4-inch equatorial by Saegmüller with graduated circles, driving clock, and eyepieces, and an old 4-inch equatorial by Newton & Co., to be used in photometric eye estimates; a combined transit and zenith telescope by Warner & Swasey, with the usual micrometer and a number of smaller instruments, such as chronometers, a Riefler clock, a polarizing photometer, an altazimuth, two chronographs, an Eastman personal equation machine, two sextants with mercurial horizons, two small astronomical transits, one of 21 inches focal length and 1⅞ inches aperture, by Saegmüller, and one of 24 inches focal length and 2 inches aperture, by Newton & Co.; a Green's barometer and thermometer, a mier mark, and half a dozen masonry piers for portable instruments for the use of students in practical astronomy. A master clock for the electrical control of secondary clocks in the various buildings on the campus is mounted in the clock room of the Observatory.

MATHEMATICS

The courses offered in pure mathematics are so arranged as to meet the needs (a) of those who desire such mathematical knowledge as is necessary to carry on investigation in some line of applied mathematics, and (b) of those who wish to make mathematics a specialty. The instruction is given, for the most part, by the aid of text-books, but several of the advanced courses are given by lectures with collateral reading. To cultivate a spirit of independent investigation, all senior and graduate students who make mathematics their major, are required to take in connection with their thesis a year's work (two-hour study) in the mathematical seminary, where the results of their investigation are presented and discussed. To the seniors and graduate students two lines of work in pure mathematics are offered, and each is given in alternate years.

Courses 10 to 24 (excepting 19) count either as graduate or undergraduate work, but in no case as both.

EQUIPMENT

The department is supplied with eighty-five of Brill's mathematical models. The collection includes an excellent set of plaster models illustrating the properties of surfaces of the second order, a set of string models for ruled surfaces, a set of paper models illustrating the real circular sections of certain conicoids, a complete set of Brill's models for the theory of functions, and a collection of surfaces of third order.

THE NATURAL SCIENCE GROUP

AIMS

The courses of the natural science group are especially intended:

1. To give a thorough liberal education with a basis in the objective sciences.

2. To prepare for the pursuit of specialties in zoölogy,

entomology, physiology, botany, or geology as a scientific career.

3. To lay in biological work and study a liberal foundation for a course in medicine.

4. To prepare for the teaching of the natural or physical sciences in high schools and colleges.

Special advantages are offered graduate students for whose work the museums, laboratories, and libraries, and the field and experimental equipment of the University and of the associated State Laboratory of Natural History, furnish an extraordinarily full provision. The University Biological Station, at Havana, is regarded as one of the University laboratories, and work done there by students may receive credit like work in any of the other laboratories.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Art and Design 1, 2; 5 hours.*
Chemistry 1, 3a or 3b, 4; 5 or 10 hours.
German B or 1, 3, 4, 6; 20 hours.
Mathematics 1 to 4; 5 hours.
Military Science 1, 2; 5 hours.
Physical Training—
 Men, 1, 3; 2½ hours.
 Women, 7, 9; 3 hours.
Rhetoric 2; 2 hours.

ELECTIVE

*List A** (Major Courses)*

Astronomy 4 to 6; 3 to 10 hours.
Biology 2; 5 hours.
Botany 1-5, 7, 9, 10; 10-44 hours.
Chemistry 2a, 5a, 5b, 5c, 7, 9, 9a or 9b, 12; 10 hours.
Geology 1, 2; 10 to 20 hours.
Mineralogy 1, 2; 5 or 10 hours.

*For Explanation of "hours" see p. 167.

**No number of hours in any subject will be accepted as major work other than the number specified against that subject in list A. Credit will not be given for both major and minor work in the same subject.

Paleontology 1; 5 or 10 hours.
Physics 1, 3; 10 hours.
Physiography 1; 5 hours.
Physiology 1, 2, 3, 5; 20 to 40 hours.
Zoölogy 1, 2, 3, 4, 6, 8; 5 to 45 hours.

List B (Minor Courses)

Biology 1; 5 hours.
Geology 3; 5 hours.
Physics 2; 4 hours.
Physiology 4; 5 hours.

The major and minor courses in lists A and B in this group are respectively the maximum offerings and the minimum requirements in the various subjects of these lists.

REQUIREMENTS FOR GRADUATION

In the natural science group a student may graduate from either a specialized or a general course.

A specialized course is one containing at least two years of major work in a single subject preceding the senior year, followed by an additional year of major work in that subject, and the writing of an acceptable thesis. No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work. Only those students who pursue a specialized course will, as a rule, be selected for fellowships, scholarships, and other similar University honors. A general course is one in which less than three years' work in any one line precedes graduation, and in which no thesis is required.

Students who specialize in geology or mineralogy may count all work done in these branches and their credits in chemistry in the list of credits required before the beginning of the senior year.

No student may graduate in natural science until he has completed all the required courses, has done at least thirty hours' work on one major elective, or forty hours' work on more than one such major (list A), and has taken at least

minor courses in all the other electives in which such courses are offered (list B). The necessary number of one hundred and thirty hours for University studies may be made up by additional elections from any courses offered in the College of Science or in the College of Literature and Arts the precedent requirements for which the student can meet.

A graduate from a four years' medical course at a school recognized by the University as of high rank may, if a matriculated student, receive for his professional medical studies credits in this group equal to one year's resident study at the University, being thus enabled to obtain his bachelor's degree in science after a three years' University course.

A student taking a three years' course of prescribed science work (see page 122), followed by three years of professional work at the University Medical School, may obtain for this joint six years' course the degrees of bachelor of science and doctor of medicine.

COURSES OF INSTRUCTION

The following list of prescribed studies and major electives shows the semesters in which the principal studies of the natural science group must be taken. The prescribed studies, which are in italics, must be taken also in the year indicated. Students intending to graduate from a specialized course should begin the study of their special subjects at the earliest time practicable.

FIRST YEAR

1. *Art and Design* 1; Advanced Algebra and Trigonometry (Math. 1, 3 or 2, 4); Biology 1; *Chemistry* 1; *Military* 1, 2; *Physical Training* 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Art and Design 2; Botany 1, 4, 5; *Chemistry* 2, 3a, or 3b and 4; *Military* 2; *Physical Training* 1, 3 or 7; Zoölogy 1, 7; Physics 2.

SECOND YEAR

1. Botany 2, 3; *German* B or 1 or 4; *Military* 2; Mineralogy 1; Physics 1, 3; Zoölogy 2, 5, 6; Biology 1.

2. Botany 1, 3, 4, 5; Geology 1; *German* B or 3 or 6; *Military* 2; Physics 1, 3; Zoölogy 1, 3 (Embryology), 4, 6 (Entomology), 7.

THIRD YEAR

1. Botany 2, 3, 7, 8, 10; Geology 1; *German* 4; Physiology 1; *Rhetoric* 2; Zoölogy 2, 4, 5, 6 (Entomology).

2. Botany 3, 4, 5, 10; *German* 6; Mineralogy 2; Paleontology 1; Physiology 1; *Rhetoric* 2; Zoölogy 3 (Embryology) 4, 6 (Entomology), 7; Biology 2.

FOURTH YEAR

1. Physiology 2; French 5; Economics 1 or Philosophy 2, 4, or 6. raphy 1.

2. Thesis (Bot. 9; Geol. 2; Physiol. 3; Zoöl. 8); Biology 2; Physiology 2; Mineralogy 2; Paleontology 1.

FULL COURSE PRELIMINARY TO MEDICINE

To students who wish to select studies leading to a degree in natural science as a liberal preparation for a course in medicine, the following course or its substantial equivalent is recommended. Graduates from this course will be required to take only the professional subjects at the University Medical School before taking the medical degree.

FIRST YEAR

1. Art and Design 1; Elementary Chemistry (Chem. 1); Mathematics 1, 3 or 2, 4; Biology 1; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Qualitative Analysis (Chem. 2, 3a); Geology 4; Bacteriology (Botany 5); Military 2; Physical Training 1, 3 or 7.

SECOND YEAR

1. Vertebrate Zoölogy and Comparative Anatomy (Zoölogy 2); Quantitative Analysis (Chem. 5a); German B or 1 or 4 or Latin*; Rhetoric 2.

2. Physics 1, 3; Organic Chemistry (Chem. 9, 9c); German B or 3 or 6 or Latin; Rhetoric 2.

*Those who offer Latin for entrance must take German in this course; those who offer German for entrance should take its equivalent of Latin before going on with German in the University.

THIRD YEAR

1. Physiology 1; German 4; Psychology 4.
2. Physiology 1; German 6; Zoölogy 3.

FOURTH YEAR

1. Physiology 2; French 5; Economics 1 or Philosophy 2, 4, or 6.
2. Physiology 2; French 5; Economics 2 or Biology 2.

Prospective students in medicine not wishing to graduate here before taking their medical course will be assisted to make up special study lists.

COMBINED COURSE IN NATURAL SCIENCE AND MEDICINE

Students desiring so to relate their science work at the University and their professional course at the Medical School as to take both the science and the medical degrees at the end of six years, may accomplish this purpose by taking the following three years' course in the College of Science, with the professional studies of the medical course thereafter:

FIRST YEAR

1. Art and Design 1; Elementary Chemistry (Chem. 1); Mathematics 3 or 1 and 3 (Trigonometry); Biology 1; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Qualitative Analysis (Chem. 2, 3a); Physics 2; Bacteriology (Botany 5); Military 2; Physical Training 1, 3 or 7.

SECOND YEAR

1. Zoölogy 2; Quantitative Analysis (Chem. 5a); German B or 1, or 4 or Latin*; Rhetoric 2.

2. Zoölogy 3; Organic Chemistry (Chem. 9, 9c); German B or 3, or 6 or Latin; Rhetoric 2.

THIRD YEAR

1. Physiology 1; German 4; Psychology 4.
2. Physiology 1; German 6; Biology 2 or Economics 2.

*Those who offer Latin for entrance must take German in this course; those who offer German for entrance should take its equivalent of Latin before going on with German in the University.

DESCRIPTIONS OF DEPARTMENTS

BIOLOGY

Under this head two courses are offered: One of elementary work in general biology, made a precedent to courses in botany and zoölogy; the other an advanced course, open only to students who have had a considerable amount of major work in zoölogy or botany or both, and intended to summarize, generalize, and extend the work of these courses on theoretical lines. Both elementary and advanced biology are taught conjointly by the departments of zoölogy and botany, the former being essentially a laboratory, and the latter a seminary course.

BOTANY

Ten courses of instruction are offered in this subject, each extending through one semester or through the year. The first two courses, each of one semester, are intended to serve a double purpose of an introduction to the work which follows for students making botany a specialty, and to afford other students an opportunity to gain the general facts of the science and to acquaint themselves with the methods of instruction. Each course as enumerated counts as major work. To a very large extent natural objects are studied rather than books, but constant endeavor is made to introduce students to pertinent existing literature. In the laboratory much use is made of the compound microscope, and special attention is given to its manipulation for best results, and to the preparation of objects. Course 8 is devoted to economic botany.

EQUIPMENT

The botanical laboratories are: One of large size with full equipment of microscopes, microtomes, aquaria, models, charts, etc., for general work; one specially arranged and fitted up for bacteriological instruction and investigation,

supplied with sterilizers, thermostats, microscopes, a full line of glassware, metal vessels, and chemicals; one adjoining the latter and used in connection with it for vegetable physiology, and having attached a glazed structure, two stories in height, well adapted to facilitate experiments upon living plants and for the growth of specimens required in the laboratories. There are also provisions for private laboratory work by instructors. The department is furnished with a lecture room; a room for the herbarium and facilities for work in connection therewith; work rooms for the preparation of specimens and material; storage rooms for apparatus, utensils, reagents, and materials; dark room for photography; rooms for offices—all in convenient association and provided with the necessary materials and apparatus for ordinary class work and for advanced research.

Special attention has been given to parasitic fungi; and the collections of specimens and of the literature upon the subject are ample for various lines of original investigation.

GEOLOGY, MINERALOGY, AND PHYSIOGRAPHY

In this department three courses are offered in geology, two in mineralogy and one in paleontology.

For students who wish more than a general acquaintance with these subjects, courses aggregating twenty hours of class room and laboratory instruction have been arranged in geology, mineralogy, and paleontology. A supplementary course of ten hours is offered those who select a geological subject for a thesis.

To those who desire merely an outline of the most prominent facts and theories of geology, with some idea of the methods by which the geologist arrives at his conclusions, a course of ten hours is offered. Teachers and others who desire an introduction to the new geography are offered a ten hours' course in physiography.

EQUIPMENT

The department occupies three students' laboratories, an instructors' laboratory, a lecture room, two collection rooms,

a store room, a dark room for photography, and a private office.

Apparatus.—The laboratories contain individual desks for forty-eight students, each of which is furnished with reagent bottles, Bunsen burners, and all the other apparatus now considered necessary to a complete outfit for blowpipe work in a first-class laboratory. They are also provided with a spectroscope, specific gravity and analytical balances, chemical hoods, a muffle furnace, contact and reflecting goniometers; lithological microscopes; crystal models (550); thin sections of minerals and rocks (570); an apparatus for cutting and grinding thin sections of rocks, with a Jenney motor; apparatus for micro-chemical analysis; a self-registering barometer; an aneroid barometer and a telescopic hand level for topographic work.

For the recitation room there is a set of Kiepert's physical maps; Ramsay's orographic map of the British Isles; Haart's Alps; Chauvanne's Asia; geological and soil maps of Illinois; a series of geological maps of the United States, representing land development during the successive periods; a set of charts illustrating orography, erosion, deposition of metals, etc., a set of physiographic models; a series of relief and contour maps; a complete lantern outfit, with microscopic and solar attachment; seven hundred lantern slides; an equipment for photography and the manufacture of lantern slides.

Materials.—The collection of fossils comes principally from the paleozoic, but includes a representative series from the higher groups. It contains 43,400 specimens. Six hundred and fifty of the types described in the reports of the Illinois geological survey are included, and also 200 thin sections of corals and bryozoa.

The collection of minerals contains 7,109 specimens, and that of rocks 2,912 specimens, among which is a large number of polished granites, marbles, and other ornamental building stones.

There is also a collection of Illinois soils containing 76

specimens; and a large collection of Illinois clays with their manufactured products.

PHYSIOLOGY

The special objects of the courses in physiology are as follows: (1) To give to prospective students of medicine a detailed practical knowledge of the normal histological structure and vital processes of the body, and a working familiarity with the instruments of precision used in the investigation of disease. (2) To give to students of all branches of biology a training in deducing logically necessary conclusions from data obtained by their own observations. (3) To furnish such a knowledge of physiology as will serve as a basis for future studies in hygiene.

The laboratory method of instruction is chiefly followed, supplemented, when desirable, by lectures, demonstrations, references to standard literature, and recitations. The laboratory work predominates in the major and advanced courses; the lectures, demonstrations, and recitations in the minor course.

EQUIPMENT

The department of physiology occupies four rooms in Natural History Hall; a general laboratory, a lecture room and a private laboratory on the top floor and an animal room in the basement. The general laboratory, thirty-five by fifty-six feet, is fitted at one end with desks of the most approved pattern for chemical and similar work, and at the other end with heavy tables, especially designed for use with the microscope and other apparatus requiring a stable support.

The department is equipped with a full set of apparatus for lecture demonstration and for laboratory work. Much of this apparatus has been recently imported from Europe and is of the latest and best pattern. Much of it is adapted to the most delicate work of demonstration or research, and is not to be found in the average physiological laboratory.

Among such apparatus may be mentioned a Zeiss micro-spectroscope for work with minute quantities of material—as blood stains in medico-legal investigations; a hæmacytometer of Gowers and of Thoma-Zeiss; Fleischl's hæmometer, DuBois Reymond induction coil, latest pattern; DuBois Reymond myographion with tuning fork and Desprez signal for measuring intervals of less than one-thousandth second; ergograph; Zimmermans-Ludwig's drum kymograph, latest pattern; Fick kymograph; sphymograph (Marey); Fleischl's spectro-polarimeter; Knop azotometer; a Kjeldahl apparatus and a complete set of Hempel's apparatus for gas analysis (technical).

The histological equipment includes a Bausch & Lomb microscope with nosepiece and sub-stage illumination for use of each student, and all the accessory apparatus and reagents for class work or research in histology. There is also a cabinet of histological specimens to which the students have access for study or reference, but the subject is taught with all the details of technique, and the student is required to prepare and examine his own material, and the specimens thus prepared remain his own property, and are of considerable value.

ZOÖLOGY

Zoölogy is taught in eight undergraduate courses, three of which are entomological, and in two graduate courses, one of which is entomological. Entrance upon the work in this department is conditioned upon general elementary biology (biology 1), upon elementary entomology (zoölogy 5), or upon high-school zoölogy or biology The courses are so organized as to lead through zoölogy 1 and 2 to advanced zoölogical work; through course 1 alone (invertebrate zoölogy), or through course 5 (elementary entomology) to general entomology; through course 2 alone (vertebrate zoölogy and comparative anatomy) to embryology and physiology and the University preparation for medical study.

One semester's work in practical entomology, intended primarily for the College of Agriculture, is offered to all University students without preliminary conditions.

EQUIPMENT

The equipment of the zoölogical department is contained in four students' laboratories, an instructor's laboratory, a lecture room, a private office, a store room, and a dark room for photography. It includes twenty aquaria, forty-eight compound microscopes of the best makes, microtomes of five patterns, and the usual equipment of incubators, paraffin baths, etc. Advanced and graduate students have the free use of the library and equipment of the State Laboratory of Natural History, which occupies rooms in Natural History Hall. They are also admitted to the privileges of the University Biological Station, at Havana, Illinois, and will be given credit for regular work done there. They are thus afforded ample opportunity for prolonged original work in several departments of zoölogical science, especially in those relating to the zoölogy of Illinois. The Bulletin of the State Laboratory is open to graduates for the publication of their papers.

Entomological students have similar access to the collections and resources of the State Entomologist's office, including a well-equipped insectary for experimental investigation.

THE PHILOSOPHICAL GROUP

AIMS

The philosophical group includes those sciences which deal both with man as an individual, in the mental and moral spheres, especially as these are connected with his physical being, and also with man in society. The branches of knowledge included in the group occupy a place among the divisions of biological science, and it is intended to carry the spirit of biology, in the commonly accepted sense, into the investigation of these subjects. The general purpose

of the group is the study of the character and development of the individual and of society, of the relations of man to external nature, of the influence of natural selection on social development, and, finally, of the possible effect of artificial selection on that development, through both subjective and objective influences.

Under this caption the subjects of psychology, pedagogy, economics, public law and administration, and philosophy are offered in the College of Science as electives to all chemical and natural science students, and to all students who desire to specialize in the philosophical subjects, with studies in the physical and natural sciences as a preparation for them. All the studies of this group are junior and senior subjects.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

The same as in either the natural science or chemical and physical group, pp. 118, and 103 and 107.

ELECTIVE

List A (Major Courses)

Economics 1 or 2 to 8, 11 to 19; 2 to 44 hours.*
Pedagogy 1 to 4; 5 to 20 hours.
Philosophy 1 to 8; 3 to 24 hours.
Psychology 1 to 5; 3 to 24 hours.
Public Law and Administration 1 to 9; 6 to 31 hours.

List B (Minor Courses)

Economics 1; 5 hours.
Philosophy 2; 3 hours.
Psychology 1; 5 hours.
Public Law and Administration 1; 6 hours.

REQUIREMENTS FOR GRADUATION

In this group, as in the natural science group, a student may pursue either a specialized or a general course.†

*For explanation of "hours" see p. 167.
†See p. 119.

To graduate from the College of Science in the studies of this group, in a general course, the student must either complete the subjects of the prescribed list in the chemical group,* or must carry those of the corresponding list in the natural science group** and earn twenty hours additional credit for major natural science studies, ten of which must be biological and five in physiography. He must further do forty hours' major work, or their equivalent, on subjects in the philosophical group; must take minor courses in all the philosophical subjects (except pedagogy) in which he has not completed a major course.

To graduate from this group in a specialized course the student must meet the general requirements for specialized courses, relating to thesis and amount of work required in the major subject.

Those who specialize in psychology may count all hours gained in that department, and any ten hours earned previous to the senior year in anthropology, botany, 1, 2; physiology 4; philosophy 1, 2, 6, 8; zoölogy 1; economics 17.

DESCRIPTION OF DEPARTMENTS

ECONOMICS

The instruction in this subject is based on the work of the first two years in science. The relation of the study to the biological sciences, commonly so called, is emphasized and kept steadily in view. In the courses in sociology the aim is to trace the evolution of society from primitive forms to its present complex structure, to examine the nature of its environment and its adaptation thereto, its present normal character and operations, and the forces, subjective and objective, which are at work tending to change its structure.

PEDAGOGY

See same in the College of Literature and Arts, p. 70.

*See p. 103.
**See p. 118.

PHILOSOPHY

The work in this department includes history of philosophy, metaphysics, ethics, and logic. The object of the courses is threefold:

1. To meet the wants of those who desire to specialize.
2. To give those who desire a more general knowledge of these subjects some familiarity with the sphere of philosophical speculation and with the philosophical method as applied to the principles and presuppositions of the various sciences.
3. To show the relation of philosophy to practical life and the value of its study as a means of general culture.

PUBLIC LAW AND ADMINISTRATION

See same in the College of Literature and Arts, p. 71.

PSYCHOLOGY

The object of this department is twofold. The aim is, first, to acquaint the student experimentally with psychic phenomena and to make him familiar with recent literature and standard authorities; and, second, to make contributions to the science itself.

For the suitable preparation of the student for higher work, he is from the first required to deal with the subject as an experimenter, and thus given a practical knowlege of the phenomena which he is to handle. The laboratory is well equipped with materials and apparatus for the continuation of this work through a large number of classical experiments upon sensation, which the student is required to conduct himself and of which a careful record is kept. The higher mental functions are then studied in a similar way, and the experimenter held responsible for the purity of the experimental conditions and the method of procedure. As a preparation for this, scientific methods and the logic of experimentation are made objects of special study. The history of psychology is also taken up. A full line of periodical literature is made accessible by the University, and

this serves as the basis of reports in the seminary. In order to give a comprehensive survey of psychic activities, the genesis of mind with its accompanying development of neural structure is traced from the lower forms of life to its culmination in adult man.

For the accomplishment of the second aim of the department, that of original research, the laboratory is well equipped with suitable apparatus and every incentive is given toward a high grade of work. Investigations not immediately connected with the laboratory are also encouraged. The plan of this higher work is formed on a coöperative basis, so that each investigator not only receives the assistance of his fellow students, but is also allowed to participate in their work.

COLLEGE OF AGRICULTURE

FACULTY

Andrew S. Draper, LL.D., President.
Eugene Davenport, M.Agr., Dean, Animal Husbandry.
Thomas J. Burrill, Ph.D., LL.D., Botany and Horticulture.
Stephen A. Forbes, Ph.D., Zoölogy.
Charles W. Rolfe, M.S., Geology.
Donald McIntosh, V.S., Veterinary Science.
Arthur W. Palmer, Sc.D., Chemistry.
Frank F. Frederick, Art and Design.
Samuel W. Parr, M.S., Applied Chemistry.
David Kinley, Ph.D., Economics.
Albert P. Carman, Sc.D., Physics.
Evarts B. Greene, Ph.D., History.
George T. Kemp, Ph.D., M.D., Physiology.
Jacob K. Shell, M.D., Physical Training.
Edgar J Townsend, Ph.M., Mathematics. (On leave.)
Violet D. Jayne, A.M., English.
William H. VanDervoort, M.E., Mechanical Engineering.
Harry S. Grindley, Sc.D., Secretary, Chemistry.
Herman S Piatt, A.M., French.
Arthur Hill Daniels, Ph.D., Philosophy.
Charles W. Tooke, A.M., Public Law and Administration.
Frank Smith, A.M., Zoölogy.
Perry G. Holden, M.S., Agricultural Physics.
Joseph C. Blair, Horticulture.
Oscar Quick, A.M., Physics.
John P. Hylan, Ph.D., Psychology.
Wilber J. Fraser, B.S., Dairying.

AGNES S. COOK, A.B., Rhetoric.
M. B. HAMMOND, PH.D., Economics.
NEIL C. BROOKS, PH.D., German.
CHARLES W. YOUNG, M.S., Botany.
ALBERT R. CURTISS, Woodworking.
HENRY JONES, Blacksmith.

AIMS AND SCOPE

The College of Agriculture aims at the higher education of the rural people and their elevation both in a business and in a social sense. It believes that civilization is the fruit of labor as well as of thought; that thought is most healthy in an active body, and that in the future, as in the past, development will come largely through those who intelligently labor.

It believes that every man needs two educations; one that is technical, to fit him for business, another that is cultural, to fit him to live; one to make him efficient and independent as to means of support, the other to develop and to train his better faculties; one to insure comfortable existence, the other to make the most of that existence. This College attempts to secure both of these for the young land owner, believing that neglect of one leads to incompetency and distress, while the want of the other dwarfs the individual and prevents his greatest usefulness. In other words, it seeks to provide that education which will best serve the needs of a rural people living in a cultured nation and under a free government.

The strictly technical portion constitutes about one-third of the course. The aim is not so much to develop and teach rules of practice as to discover the principles and to establish the laws of agricultural science. Of the remaining two-thirds of the course more than half is prescribed in the sciences. This is done both for their own sake and to fortify the technical work of the course. Because of this and because the subject-matter and the methods of the technical portion lie so fully within the domain of science, the course

is essentially scientific rather than literary, and it is believed that the sciences afford a favorable field for the development of the higher faculties of the mind. Yet the College is mindful of the fundamental character of history, literature, and political science as training studies, and reasonable attention to these subjects is required.

METHODS OF INSTRUCTION

Instruction is by laboratory work, supplemented by text-books, lectures, and reference readings, which are almost constantly assigned from standard volumes and periodicals. Laboratory methods of study are regarded as peculiarly suited to the subjects of this course and the needs of its students, and a liberal equipment has been provided for students' use and for purposes of illustration.

EQUIPMENT

The equipment for the technical work of the course is increasing rapidly. The department of agricultural physics is fitting up laboratories for investigation in soil physics and in mechanical analysis of soils. The dairy department is equipped with a plant for laboratory work in testing, pasteurizing, separating, creaming, and churning, and for investigation in dairy bacteriology.

For illustration and practice in expert judging, the College owns a stud of Morgan horses, herds of Jersey, Shorthorn, and Holstein-Friesian cattle and a choice flock of Shropshires.

The department of veterinary science is provided with a model of the horse in *papier maché*, capable of dissection into nearly one hundred parts. There are also natural specimens illustrating nearly every disease of bone to which the horse is subject.

The College makes free use of the extensive fields, orchards, and gardens in which the Agricultural Experiment Station conducts experiments in methods of culture, effect of various practices upon yield and upon fertility, varieties

of fruits, vegetables, and forage crops from corresponding latitudes in various parts of the world. The methods employed and the results secured are freely used for instruction. This is the more readily accomplished because for the most part the instructors are also in charge of the experiments.

The ornamental grounds which surround the University buildings contain about twenty acres, and are kept neat and attractive. These, with their trees and flowering shrubs, lawns, beds of flowers and foliage plants, walks and drives of different construction and styles, furnish illustrations for the classes in landscape gardening. A greenhouse contains a collection of plants of value to the classes in floriculture and landscape gardening.

The cabinets contain a series of colored casts of fruits, enlarged models of fruits and flowers, collections of seeds of native and exotic plants, of specimens of native and foreign woods, of beneficial and injurious insects, and of specimens showing their work; numerous dry and alcoholic specimens and preparations; photographs, maps, charts, diagrams, drawings, etc.

The college has a supply of compound microscopes and other apparatus, and students have opportunity to learn their use and to make practical investigations with them. The herbarium is rich in specimens of useful and noxious plants, including many of the fungous parasites which cause disease to cultivated crops.

Agriculture is beginning to have a literature, and the library contains a large collection of works on agriculture by standard authors in English, French, and German; also reports of agricultural departments of this and other countries, journals of agricultural societies, both in America and abroad, besides nearly all the standard agricultural periodicals of the United States and many from Europe and Australia. The student not only has free access to this literature, but is constantly assigned reference readings as a part of his class work.

In work other than the purely technical, the agricultural

student meets the same instructors and enjoys the same privileges as other students of the University, and in all departments the laboratory method is freely employed, in which the student uses apparatus with his own hands and consults the literature of the subject at every step.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Agriculture 1, 2, 3; 12½ hours.*
Animal Husbandry 1, 2, 3; 9 hours.
Art and Design 1; 3 hours.
Botany 1, 2, 5; 10 hours.
Chemistry 1, 3b, 4, 13; 20 hours.
Dairy Husbandry 1, 2; 3½ hours.
Economics 1 or 2; 2 or 3 hours.
English 1; 5 hours.
Horticulture 1, 2, 5; 9 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.
Thesis; 10 hours.
Veterinary Science 2; 5 hours.
Zoölogy 2, 7; 10 hours.

Students are allowed to elect between animal husbandry 2, 3 and an equal amount of time in horticulture.

If the student has entered without botany or zoölogy, one or both, he will need to take biology 1 preparatory to the prescribed work in botany or zoölogy. If he has entered without physiology he should elect physiology 4 before taking animal husbandry 2.

REQUIREMENTS FOR GRADUATION

The degree of bachelor of science is conferred upon the presentation of an acceptable thesis after the completion of the prescribed subjects and sufficient electives to make 130 semester hours.

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*For explanation of "hours" see p. 167.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Agriculture

First Year

1. Animal Husbandry 1; Dairy Husbandry 1; Art and Design 1; Chemistry 1; Horticulture 1; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Agriculture 1; Botany 1; Chemistry 3b and 4; Dairy Husbandry 2; Horticulture 2; Military 1, 2; Physical Training 1, 3 or 7.

Second Year

1. Veterinary Science 2; Botany 2; Rhetoric 2; Military 2; Electives.

2. Agriculture 2; Zoölogy 7; Rhetoric 2; Military 2; Electives.

Third Year

1. Physics 2; Zoölogy 2; English 1; Electives.
2. Agriculture 3; Botany 5; Economics 2; Electives.

Fourth Year

1. Animal Husbandry 2, 3; Thesis; Electives.
2. Horticulture 5; Thesis; Electives.

WINTER SCHOOL IN AGRICULTURE

For the winter school students are admitted without entrance examination to a special short course in which are daily lectures and class exercises on some of the most important practical branches of agriculture, horticulture, and veterinary science. This course is designed for young men already engaged in agricultural pursuits who cannot spend a long time in college, and yet are anxious to make the most of themselves and of their vocation. Such students have access to the library and museum collections of the University, and have admission to the courses of general lectures.

The details of this course vary from year to year. A special circular giving full information concerning it is issued each year several weeks before the Christmas holidays.

STATE LIBRARY SCHOOL

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
KATHARINE L. SHARP, PH.M., B.L.S., DIRECTOR, Library Economy.
MARGARET MANN, Cataloguing.
MAUDE W. STRAIGHT, A.B., Reference.
GRACE O. EDWARDS, B.S., B.L.S., Library Economy.
GERTRUDE SHAWHAN, B.L., Cataloguing.

AIMS AND SCOPE

The *Library School*, which had been conducted at Armour Institute of Technology, Chicago, since September, 1893, was transferred to the University of Illinois in September, 1897.

The scope of the work of the school has been broadened since the time of the transfer. There is now offered a four years' course of study, leading to the degree of bachelor of library science. Two years of the course are devoted to general university studies, and this is the smallest preparation which will be accepted for entrance upon the technical work. Students are encouraged to complete a four years' college course before applying for admission. This high standard is necessary because conditions in library work are rapidly changing. It is not enough to have a knowledge of books, nor is it enough to have a knowledge of methods. One or two years of training will not take the place of years of experience, but they will make the student more adaptable and general library service more intelligent.

Instruction is given in each department of library administration. Stress is laid upon simplicity and economy, although elaborate methods are taught to enable students to work in large libraries where bibliographic exactness is

required. The higher side of library work is emphasized throughout the course, and students are taught their responsibility to the schools, to the clubs, to the factories, to university extension, and to the people as organized bodies and as individuals.

It is the purpose of the University to graduate librarians who are not only trained, but educated; librarians who are not only equipped in technical details, but filled with an appreciation of their high calling to furnish "the best reading to the greatest number at the least cost."

The school offers a course of twelve lessons, open to all students of the University, on the use of the library and the ordinary reference books.

METHODS OF INSTRUCTION

There are so few text-books on library economy that instruction is given almost altogether by lecture and laboratory methods. References to books and periodicals are given for collateral reading, and individual research is encouraged from the start. Lectures are illustrated by the collections of forms and fittings and each student is expected to do a certain amount of practical work in the University library each day. Before completing the course, each student must have had actual experience in every department of the library. Class room work is tested by problems, and examinations take the form of problems wherever practicable.

EQUIPMENT

The most valuable equipment is the working library of the University.

The Library School has the complete collection of manuscript notes and problems which have been prepared since the school opened in 1893. As text-books are so few, this collection is invaluable. A collection of library reports and catalogues and of mounted samples, showing methods of administration in all departments, is carefully classified and

is continually increasing. A collection of card catalogues of various forms has been made, including the book forms from Leyden, Holland; Cassel, Germany; and Florence, Italy; the Rudolph indexer and the modern forms approved by the American Library Association. Other forms are represented by photographs.

The school has a collection of printed blanks and forms illustrating methods of administration in different types of libraries, many labor-saving devices, and samples of fittings for all departments. The school received much material from the World's Columbian Exposition in 1893, and is constantly receiving additions from librarians and manufacturers throughout the country.

A collection of cataloguing rules and of classification systems is making for comparative study. A number of devices and patents, such as temporary binders, pamphlet cases, newspaper files, etc., have been contributed by inventors and manufacturers.

REQUIREMENTS FOR GRADUATION

Credit for 65 hours,* including the prescribed military and physical training, in addition to two years' prescribed technical library work, is required for graduation. The technical work is of junior and senior grade, and must be taken at the University, but the work of the first two years covers general university studies and may be taken at any college from which credits are accepted.

COURSE OF INSTRUCTION

Required for the degree of B.L.S.

The work of the first two years may consist of any of the courses offered in the University, the requirements for which students can meet.

*For explanation of "hours" see page 167.

THIRD YEAR

1. Elementary Library Economy (Lib. 1); Elementary Reference (Lib. 2); Selection of Books (Lib. 3); Elementary Apprentice work (Lib. 4).

2. Elementary Library Economy (Lib. 1); Elementary Reference (Lib. 2); Selection of Books (Lib. 3); Elementary Apprentice Work (Lib. 4).

FOURTH YEAR

1. Selection of Books (Lib. 3); Advanced Library Economy (Lib. 5); Bibliography (Lib. 6); History of Libraries (Lib. 7); Advanced Reference (Lib. 8); Advanced Apprentice Work (Lib. 10).

2. Selection of Books (Lib. 3); Advanced Library Economy (Lib. 5); Bibliography (Lib. 6); Advanced Reference (Lib. 8); Book-making (Lib. 9); Advanced Apprentice Work (Lib. 10); Thesis (Lib. 11).

SCHOOL OF MUSIC

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
WALTER HOWE JONES, DIRECTOR OF SCHOOL, Piano.
ALISON MARION FERNIE, R. A. M. (London), P. A. M. (Philadelphia), Voice.
ALICE PUTNAM, Violin.
JESSIE YOUNGE FOX, Piano.

AIMS AND SCOPE

The School of Music offers courses leading to the degree of bachelor of music.

The courses are widely varied. Although regular courses are laid out, students may spend an indefinite amount of time in the study of an instrument or of the voice.

The course in the history of music, as well as the work in the University Orchestra and the University Oratorio Society, may be taken by regular students in other departments.

A course of artists' concerts is given each season under the management of the School of Music. In these concerts, to which an admission fee is charged, only artists of the best reputation appear.

The instructors in the School of Music give recitals and lectures on musical subjects during the year.

REQUIREMENTS FOR GRADUATION

Credit for 130 semester hours, including military and physical training credits, together with an acceptable thesis, is required for graduation with the degree of bachelor of

music. The thesis required for graduation must be on a topic related to music.

Students who are not working for a degree in music may receive a certificate of work done by complying with the following conditions:

Students of the piano, organ, or violin must complete the entire course specified for these instruments; must also complete the work offered in harmony, covering thirteen hours, and must take one year's work (ten hours) in either German or French.

Students of the voice must complete the entire course offered in vocal work, the thirteen hours' work in harmony and one year's work on the piano, besides taking one year (ten hours) of German or French, and one year (ten hours) of Italian.

Special and preparatory music students are required, in addition to their practical work in music, to pursue other lines of study sufficient to fill in their spare time.

Students enrolled in the department of music only pay no semester fees, but must pay the music fees. (See p. 265.)

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Music 1; 2 hours.*
Music 2a; 13 hours.
Music 2b; 3 hours.
Music 2c; 3 hours.
Music 2d; 3 hours.
Music 3b, 4b, 5b or 6b; 56 hours.
French or German; 10 hours.
Italian 1; 10 hours.
Mathematics 4; 2 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 1, 3; 5 hours.
Rhetoric 1; 6 hours.

*For explanation of "hours" see p. 167.

The remaining hours of credit may be obtained in electives offered in the College of Literature and Arts, choice of subjects being left to individual students.

MUSICAL ORGANIZATIONS

The University Glee Club is an organization for men. Membership is decided by competition and is limitea to sixteen in number. The club meets twice a week for rehearsal.

The Young Ladies' Glee Club is an organization for the young ladies of the University, and is in charge of the vocal department.

The Mandolin and Guitar Club is open to young men who play these instruments. Membership is decided by competition, and the club is associated with the Glee Club in its concerts.

The Military Band is conducted by the director of the School of Music. It furnishes music for important University occasions and appears at battalion drill of the military department, besides giving several concerts during the year. Membership is limited to thirty in number and is decided by examination.

The University Orchestra meets for a two hours' rehearsal once a week, and is open to all students who play any orchestral instrument ordinarily well.

The University Oratorio Society meets once a week for rehearsal of choral works, especially oratorio choruses. Membership is free to students. Singers not connected with the University are admitted on the payment of a small fee.

GRADUATE SCHOOL

ORGANIZATION

The Council of Administration of the University is in charge of the Graduate School, and the executive officer, to whom communications should be addressed, is the Dean of the Graduate School.

ADMISSION AND REGISTRATION

Graduates of the University of Illinois, and of other colleges and universities of approved standing, may be admitted to membership in the Graduate School upon presentation of their credentials. Other persons suitably qualified may gain admission by special vote of the Council of Administration upon such conditions as may be imposed in each case. Candidates for admission may secure application blanks from the Dean, and these, properly filled out, should be filed, together with such documentary matter as may be presented showing qualifications for membership in the school, with that officer. This should be done not later than the time set for registration in September. Admission may be granted at other times, but the time limit required for degrees counts from the date of the certificate of membership. In the case of non-residents, correspondence should be commenced early, so that the details can be completed by the time mentioned.

With the exceptions named below, all members of the Graduate School are required to be in regular attendance at the University, and to do all the work for which they are registered in the departments to which such work belongs. In case of absence on leave, or when absence is necessary to carry on investigations included in approved courses of study, the requirement of continuous residence may be modified by the Council of Administration. Graduates of this University may be admitted as non-resident members of the

Graduate School; and all members of the School who have completed the residence period required for advanced degrees may register as non-residents while completing the work required for such degrees.

Members of the Graduate School register with the Dean during the registration period of each semester. This in the case of non-residents may be done by letter stating the work to be undertaken during the ensuing half-year.

STUDIES AND EXAMINATIONS

As far as can be indicated by a statement of time, full work for a graduate student consists in the use of forty-five hours a week in the lecture rooms, laboratories, etc., and in private study. Assignments of work are made upon this basis; but great variations naturally result from the subject-matter in hand, and from the abilities of individuals. Each student must select one principal line of study, called his major subject, and upon this major subject at least one-half of his work must be done; and any greater proportion of his time, up to the whole of it, may be thus devoted if proper approval is had. When work upon the selected major subject is not arranged to require all of the student's attention, he must choose one or two minor subjects, as may be necessary to complete a full course of study. Usually, at least one minor subject should be taken. Not more than two may be taken at the same time.

The major study must be approved as graduate work for this University. The minor subjects may, under aproval, be chosen from the offerings to graduates, or, except in the College of Engineering, from undergraduate courses exclusive of those usually open to freshmen. But all candidates for advanced degrees must direct their selection toward some well-defined end, determined for the most part by the character and purpose of the major study.

In architectural and engineering subjects, at least the major line of study and not less than two-thirds of the entire work must be taken from lists marked "primary,"* and any

*See the courses for graduates in architecture and other engineering courses, in the "General Description of Courses," pp. 176, 192, 201, 226, 231.

remaining amount to complete a full course may be taken from those designated "secondary," under the same head with the primary list.

All courses of study leading to degrees in the Graduate School are subject to approval, first, by the head of the department of the University in which the major subject for each student belongs; second, by the Dean of the College including such department; and, third, by the Dean of the General Faculty. The signatures of the heads of departments in which chosen minor subjects belong must also be obtained before the list reaches the Dean of the General Faculty. The lists of studies, as finally approved, are deposited with the Registrar of the University. No changes may subsequently be made except under the same line of approvals, but extension of time may be arranged with the professors concerned and with the Dean of the General Faculty.

Examinations are required in all subjects, and reports upon these are made to the Registrar of the University. Graduate students in undergraduate classes are examined with these classes.

The head of the department in which the student does his major work is charged with the direction and supervision of such major work, and, in a general way, with the supervision of the student's entire course of study. He fixes the time and method of all examinations not otherwise provided for, sees that they are properly conducted, and reports results to the Registrar. It is his duty also to keep the Dean of the General Faculty informed concerning all matters affecting the interests of the student, and of the School in connection therewith.

DEGREES AND FELLOWSHIPS

A full statement regarding the degrees conferred by the University may be found on later pages of this catalogue, and in the same connection an account of fellowships. (See pp. 249 and 253.

SCHOOL OF LAW

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT AND ACTING DEAN.

CHARLES C. PICKETT, A.B., Professor of Law of Contracts, Equity, and Carriers.

WILLIAM L. DREW, LL.B., Professor of Law of Torts, Agency, and Corporations.

THOMAS W. HUGHES, LL.M., Assistant Professor of Law of Real Property, Evidence, and Commercial Paper.

CHARLES W. TOOKE, A.M., Assistant Professor of Public Law and Administration, Instructor in Law of Domestic Relations, and Commercial Law.

LECTURERS

HON. OLIVER A. HARKER, Judge of the Appellate Court of Illinois, Lecturer on Criminal Law.

HON. CHARLES G. NEELY, Judge of the Circuit Court of Cook County, Lecturer on the Preparation for and Conduct of Trials.

HON. BENJAMIN R. BURROUGHS, Judge of the Appellate Court of Illinois, Lecturer on the Law of Real Property.

HON. FRANCIS M. WRIGHT, Judge of the Appellate Court of Illinois, Lecturer on the Law of Easements.

HON. CHARLES C. STALEY, County Judge of Champaign County, Lecturer on Probate Law and Administration of Estates.

Special courses of lectures will also be given by other gentlemen.

REQUIREMENTS FOR ADMISSION

1. All applicants for admission to the School of Law must be at least 18 years of age and of unquestionable character.

2. Graduates of colleges and of scientific schools of approved standing are admitted upon diploma or certificate without examination.

3. Graduates from any approved high school in the state are admitted in the same way.

In the absence of proper certificates the usual examination will be required.

ADVANCED STANDING

The following persons will be admitted to advanced standing:

1. Persons who produce from another law school, in good standing, certificates of having satisfactorily pursued courses in law, included in the following schedule, and received credit therein, *provided* that the time spent on such courses is equivalent to the time spent on the same courses in this school. Otherwise, an examination on such courses, given by the instructors in this school, must be satsfactorily passed.

2. Persons who have studied law privately or in an attorney's office, and pass examinations prescribed by the faculty of the School.

3. Members of the bar of this state, who will be admitted to the third year class without examination as candidates for the degree of LL.B.

SPECIAL STUDENTS

Students who do not desire to be candidates for a degree may take one or more courses as special students upon approval of the faculty of the School under regulations to be prescribed. Such students will receive credit for work satis-

factorily done, and may become candidates for graduation at any time by meeting the requirements of the School.

METHODS OF INSTRUCTION

The methods of instruction used in this School are based largely upon the study of cases. Text-books are used to some extent, and lectures are occasionally resorted to, but the study of the case is regarded as the chief means to the attainment of legal knowledge and proficiency.

LIBRARY AND MOOT ROOM

The library consists of the leading text books on all subjects: Supreme and Appellate Court Reports of Illinois; United States Supreme Court Reports; New York, Ohio, Massachusetts, Iowa, Wisconsin, Michigan, and Indiana Reports; American Decisions, American Reports, and American State Reports; the current volumes of the West Company Reporter System, and the leading legal periodicals. Additions of reports and text-books will be made during the coming year.

The Moot Court is held once a week for the purpose of familiarizing the student with legal procedure. It is presided over by Judge Harker, the other officers being elected by the law students from their own body. Every student is required to be present and to perform such duties as may be assigned him.

LEGAL STUDY AND UNIVERSITY WORK

The Council of Administration will, upon application, in proper cases, apply credits earned in the School of Law upon other University courses.

Students matriculating in the School of Law may take any of the following courses in the College of Literature and Arts, subject to the approval of the instructors having such courses in charge, and of the instructors in the School of Law: Public law and administration; economics and social

science, history, and early English legal codes. By special arrangement other work in the College of Literature and Arts may also be taken.

COURSE OF INSTRUCTION

Required for the Degree of LL.B.

FIRST YEAR

1. Contracts (Law 1); Torts (Law 2); Real Property (Law 3).

2. Contracts (Law 1); Torts (Law 2); Real Property (Law 3); Domestic Relations (Law 4); Criminal Law (Law 5).

SECOND YEAR

1. Evidence (Law 6); Sales (Law 7); Real Property (Law 8); Common Law Pleadings (Law 9); Damages (Law 11).

2. Evidence (Law 6); Agency (Law 10); Bailments and Carriers (Law 12); Guaranty and Suretyship (Law 13).

THIRD YEAR

1. Equity (Law 14); Corporations (Law 15); Commercial Law (Law 16); Wills (Law 17); International Law (Law 21).

2. Equity (Law 14); Corporations (Law 15); Partnership (Law 18); Constitutional Law (Law 19); Equity Pleadings (Law 20).

SEMINARY COURSE IN LEGAL HISTORY

During the year there will be given a seminary course in legal history under the joint direction of the instructors in the School of Law and Mr. Schoolcraft, of the department of history. It is proposed to study in detail the Year Books covering a limited period with special reference to land tenures, feudal obligations, and the practice in the courts. This course is for advanced students only, and a reading knowledge of Latin and French is essential.

REQUIREMENTS FOR GRADUATION

The requirements for graduation with the degree of bachelor of laws are sixty-six semester hours of work, and a thesis, etc., embodying the results of original research upon

a subject approved by the faculty of the School of Law. A "semester hour," as here used, means one hour per week of class room work for one-half of a year. The degree will be conferred upon the completion of the course set forth above.

ADMISSION TO THE BAR

Under the rules of the Supreme Court of Illinois, candidates for admission to the bar of this state must have had a high school education or its equivalent, must have completed a three years' course of study in a law school or law office, and must then pass an examination to be given by the State Board of Bar Examiners.

THE SCHOOL OF MEDICINE

[For Faculty of the School of Medicine, see p. 16.]

HISTORY

The School of Medicine, the College of Physicians and Surgeons, is located on the corner of Harrison and Honore Streets, Chicago, in the heart of the medical quarter of the city. It was founded in the year 1882 by a number of representative physicians and surgeons. In 1892 the College had a thorough reorganization, and erected a commodious laboratory building—the first building exclusively for laboratory purposes erected by any medical school in the West. Since that time it has grown with steadiness and rapidity. The attendance in 1895-96 was 235; in 1896-97, 308; in 1897-98, 408; and in 1898-99 is 514, 35 of the attendants being women. It became the Medical Department of the University in April, 1897.

Chicago is already the center of medical study in the United States. In the winter of 1897-98 it contained a larger number of medical students than any other city in the western hemisphere. These students are distributed among fourteen medical colleges, of which the College of Physicians and Surgeons is the second, as to the size of its classes, and is not outranked by any in respect to its facilities, or the scope and thoroughness of its curriculum, or in regard to the place it occupies in the esteem of the medical profession.

SESSIONS

The collegiate year is divided into two sessions, the winter session, which begins on the third Tuesday in September and ends on the third Wednesday in April; and the spring

session, which begins on the third Thursday in April and ends during the last week-day in June. The winter session is obligatory. The spring session is a supplementary course designed to furnish students opportunities to do special work and to make up arrearages of study.

REQUIREMENTS FOR ADMISSION, SESSION OF 1899-1900

First, a certificate of good moral character from two reputable physicians.

Second, a diploma from a recognized college, academy or high school, or other proof of scholarship equivalent to, at least, three years' work in a high school approved by the University of Illinois. Students unable to meet this requirement are accepted upon passing a satisfactory examination in the following subjects:

(a) English: The writing of an essay of at least two hundred words on a selected subject. Goldsmith's Vicar of Wakefield will furnish the basis of examination in English for this year.

(b) Physics: The principles of mechanics and hydraulics, Mechanics' Natural Philosophy, Part I., is recommended in preparation.

(c) Mathematics: Arithmetic and algebra; plane geometry, as given in Wells's or Wentworth's Geometry.

(d) Latin grammar and an examination in translating Latin into English from "Cæsar's Commentaries," representing at least two years' study of Latin in an accredited high school. One year will be allowed in which to remedy defects in Latin.

Beginning with the fall of 1900 the entrance requirements will be as follows:

First, a diploma of an accredited high school or academy of the University of Illinois, or of a similarly accredited school of another University, whose entrance requirements are equivalent to the entrance requirements of the University of Illinois.

Or, second, entrance examination covering the following subjects:

1. Algebra.—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of exponents, and the analysis and solution of problems involving these. The subject as given in Wells's Higher Algebra through quadratic equations, or the same work in Wentworth's Algebra, or an equivalent.

2. Composition and Rhetoric.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of Rhetoric. The candidate will be required to write two paragraphs of about one hundred and fifty words each to test his ability to use the English language. The subject as presented in Genung's Outlines of Rhetoric, Scott and Denney's Fnglish Composition, or an equivalent.

3. English Literature.—(a) Each candidate is expected to have read certain assigned literary masterpieces, and will be subjected to such an examination as will determine whether or not he has done so. The books assigned for the next year are as follows:

Dryden's Palamon and Arcite; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Lowell's Vision of Sir Launfal; Scott's Ivanhoe; Shakspere's Macbeth; Milton's Paradise Lost, Books I. and II.; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Tennyson's The Princess.

(b) In addition to the above, the candidate will be required to present a brief outline of American Literature. Hawthorne and Lemmon's Outline of American Literature, or an equivalent..

4. Latin.—Such knowledge of inflections and syntax as is given in any good preparatory Latin book, together with the ability to read simple fables and stories; also four books of Cæsar's Gallic War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

5. Geometry.—Plane Geometry, as given in Wells's or Wentworth's Geometry, or an equivalent.

6. History.—At least one year in one of the following subjects: (a) The History of England and of the United States; (b) General History; (c) The History of Greece and Rome.

7. Physics.—The elements of physical science as presented in such text-books as Appleton's School Physics, or Avery's Elements of Natural Philosophy, or Carhart and Chute's Elements of Physics, or Gage's Elements of Physics.

The entrance examination will be conducted in writing by a committee outside of the Faculty of the School of Medicine appointed by the President of the University, and will be held at the medical college at 10 a. m. on the Monday preceding the opening of the winter and spring terms.

ADVANCED STANDING*

Students who have received the degree of bachelor of arts or bachelor of science, and those who have completed a "medical preparatory course," equivalent to that given by the University of Illinois, and graduates of reputable schools of pharmacy, veterinary science, or dental surgery, whose course extends over two years, may enter the sophomore class and complete their studies upon three years of attendance, provided they fulfill all other requirements for admission and graduation. *Students thus advanced may not complain of any conflict of hours, nor absent themselves from any part of the lower conflicting course;* but they may make up deficiencies in the work of the winter session during the spring course in such branches as are represented in that course.

COURSE OF STUDY*

The curriculum required for graduation extends over four years. During the first two years the work is confined to the sciences fundamental to practical medicine. During the freshman year this consists of work in histology, biology, embryology, chemistry, human anatomy, physiology, and materia medica. During the sophomore year the study of physiology, chemistry, and human anatomy is continued, and in addition the student takes up pathology, bacteriology, and therapeutics. With the junior year the study of the practical branches of medicine is begun. The entire subjects of practice of medicine, surgery, and obstetrics are covered in recitation courses. The student also begins clinical and bed-

*For Combined Undergraduate and Medical course of six years, leading to the degrees of B.S. and M.D., see p. 122.

side work and receives instruction in medical and surgical specialties. More advanced work along the same lines is continued in the senior year. Practice of medicine, surgery, and obstetrics are gone over again, this time in lecture courses and with greater minuteness of detail and profuseness of illustration. The various special departments of medicine and surgery are presented with like thoroughness, and a large part of the student's time is given to clinical study.

METHOD OF INSTRUCTION

During the first two years the time of the students is about equally divided between laboratory and didactic work. The plan of instruction in the School contemplates the freest use of laboratory teaching. Wherever possible practical laboratory work is made to supplement didactic teaching. Students are taught not only by prepared specimens, but they are required to prepare their own specimens from the original material, and are thus made familiar with technical methods, so that they become able independently to carry a technical investigation through all of its stages. During the junior and senior years the time is about equally divided between clinical and didactic work, with, perhaps, a preponderance of clinical instruction in the senior year. This clinical instruction is carried on, as far as possible, with the student at the patient's side. Attendance upon clinics is required in the same way as upon lectures, and the students are graded upon, and given credit for, their work in the clinical courses just as they are for the work in the didactic and laboratory courses. During the winter sessions the students of the junior and senior years are divided into classes for dispensary work, and these classes have instruction in rotation in the various departments of practical medicine. During the spring term the dispensary clinics are thrown open to students of all classes.

EQUIPMENT

The college building is a six-story structure on the corner of two wide streets, with an open space around it on all sides. It is heated by steam and provided with all modern conveniences. It contains three well-lighted and well-ventilated amphitheaters, the smallest of which seats two hundred students. In these amphitheaters the usual lectures are given. Adjacent to the college building on the west is the laboratory building. The laboratories contained therein are among the largest and most complete possessed by any medical college in the United States. They occupy four floors, three of them 25x100 feet each, and one 25x56 feet. Each will accommodate one hundred and twenty students at a time. They are provided with desks and lockers for students' use, and are well adapted to the work for which they are severally intended. Adjoining the laboratories are preparation rooms for the use of demonstrators and professors. There is a bone room, to which students have free access for the study of osteology. In the department of pathology the collections furnish ample material for the macroscopical as well as the microscopical study of diseased tissues. The store rooms are connected with all the laboratories by means of an elevator. The School has for the use of students over 130 modern microscopes of late continental and American patterns, a sufficient number of which are equipped with oil emersion lenses. There are also an ample number of microtomes for students' use, besides microtomes of special construction for particular kinds of work, electric projection apparatus of latest design, and all other apparatus in any way necessary for students' work or for the illustration of lectures.

FREE DISPENSARY

The dispensary occupies the first floor and a portion of the second floor of the main building. Connected with the reception room are fourteen clinic rooms for the accom-

modation of the various specialties in medicine and surgery. During the past five years there have been treated in these rooms an average of twenty thousand patients each year.

HOSPITAL FACILITIES

Members of the faculty and other friends of the School have recently purchased the adjoining building of the Post-Graduate Medical School and converted it into a hospital of 125 beds. It is a large, handsome structure, 50x100 feet, five stories high, of modern construction, and completely furnished. It is connected with the college amphitheater by a corridor and its clinical resources are thus made easily available for the instruction of students. Directly opposite the School is Cook County Hospital, the only free hospital in Chicago. It contains almost a thousand patients, and supplies a quantity and variety of clinical material which no private institution can command. In the amphitheater of the hospital much of the clinical instruction of the School is given. In addition to the foregoing resources members of the faculty are connected with various other hospitals of the city and freely draw upon them for the benefit of students. An entire floor of this hospital is reserved as a ward for patients who are maintained in hospital by the School for the instruction exclusively of its students. It is designed to increase this hospital facility as necessity indicates.

REQUIREMENTS FOR GRADUATION

First, a certificate of good moral character by two reputable physicians.

Second, satisfactory deportment during attendance at college.

Third, satisfactory evidence that the candidate is twenty-one years of age.

Fourth, proof that the candidate has attended at least four full courses of instruction in four separate years, the last of which shall have been in this institution.

Fifth, certificate that the candidate has pursued the study of practical anatomy during two years and to the extent of having dissected at least the lateral half of the human body.

Sixth, certificate that the candidate has attended two full courses of dispensary and hospital clinics.

Seventh, payment of all the college fees in full.

LIBRARY

The College has for several years had a reference library of several hundred volumes. This library owes its foundation to the gift to the College of the collection of books of the late Prof. A. Reeves Jackson. It has been added to largely from time to time by contributions from members of the faculty and other friends of the College. Its usefulness has recently been greatly augmented by gifts from the Dean of the Faculty, in consideration of which, and of provision made for its permanent maintenance and growth, it has been named by the faculty the Quine Library. It already contains practically every book of reference required by medical students, and the important medical periodicals. In point of size and completeness it is the second medical library in Chicago, Newberry Library being the first, and in attendance of readers it is the first. It is in charge of a trained librarian, and is open daily from nine to five for the use of students.

More detailed information concerning the School may be obtained by application to the Registrar of the University, Urbana, Ill., or to the Secretary of the School of Medicine, William Allen Pusey, A.M., M.D., 103 State Street, Chicago.

THE SCHOOL OF PHARMACY

[For Faculty of School of Pharmacy, see p. 20.]

HISTORY

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany Mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College, from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a

building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School the Trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The School is situated near the business center of Chicago. In addition to the larger amphitheater, known as "Attfield Hall," which has a seating capacity of three hundred and fifty, the building occupied has a smaller hall especially fitted for lectures and demonstrations in chemistry, and capable of seating one hundred and fifty persons. The chemical and pharmaceutical laboratories, as well as the microscopical laboratory and the dispensing laboratory, are commodious and well appointed.

The courses of instruction, covering two terms of twenty-six weeks each, extending from October 3d to April 20th, afford opportunities for a thorough technical training, such as is necessary for the successful practice of pharmacy. The subjects taught are pharmacy, chemistry, botany, and materia medica.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

REQUIREMENTS FOR ADMISSION

Applicants for admission must be at least sixteen years of age and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, must pass the examinations, and must not have been absent more than five times during the term from either laboratory exercises or lectures in any department.

Candidates may present themselves for examination during the last year of their required experience or of their attainment of legal majority.

To students who complete a third year's work, embracing principally instruction in more advanced pharmaceutical chemistry and in bacteriology, the degree of pharmaceutical chemist is offered. Drug-store experience will not be required for this degree.

Persons competent to fulfill the general requirements of admission to the University may be granted credit upon the University courses for equivalent work satisfactorily completed at the School of Pharmacy.

Further information is given in the special announcement of this school. Address W. B. Day, Actuary, School of Pharmacy, 465-7 State Street, Chicago, Ill.

HOUSEHOLD ECONOMICS

The University offers a group of courses selected from various departments to form a complete scientific basis for planning, decorating, and managing a home.

Household sanitation and chemistry of foods will be in charge of a woman especially equipped for such work, who will at the same time correlate the various courses given by the other instructors.

The courses are as follows:

ARCHITECTURE

A special course is offered to students in household economics in house-planning and house decoration. See Architecture 25.

BACTERIOLOGY (BOTANY 5)

This course extends through the second semester, ten hours a week. Eight to ten weeks are devoted to a general introduction to the science and the methods of laboratory work, the nature and characteristics of bacteria, their kinds and special effects, the preparation of nutrient media, securing and continuing pure cultures, microscopical preparations, etc. After this each student may select a subject or line of subjects for special study and investigation. These may be of direct interest and importance to the housekeeper, and include besides general sanitary matters, such topics as fermentation and putrefactive changes in foods and food substances; beneficial and injurious organisms and their effect in bread-making, in milk products, etc.; bacteriological examination of water and of air; the preservation of organic substances; cleansing and fumigating clothing, rooms, apparatus, etc.; and the distribution and elimination of disease germs.

Required: Chemistry 1 and Zoölogy 10.

CHEMISTRY

Two years of chemistry are offered for students of household economics.

Subjects of the first year are: General elementary chemistry. (Chem. 1). Qualitative analysis. (Chem. 3 b). Elements of organic chemistry. (Chem. 4.)

For the second year several different courses are available. These should be grouped substantially as follows: Either (1): Quantitative analysis (Chem. 5a), and chemistry of foodstuffs (Chem. 5c). This includes analysis and testing of milk, butter, cereals, meats, etc.

Or, (2): Agricultural chemistry (Chem. 13).

Or, (3): Household chemistry (Chem. 23).

This course includes analyses of baking powders, vinegars, syrups, sugars, soaps, etc., etc.

Sanitary analysis of water, air, etc. (Chem. 10), and proximate organic analysis (Chem. 21) afford opportunities for investigation of food supplies in both the raw and prepared state.

ECONOMICS

The problem of domestic service is a phase of the labor problem. Students in household economics will be assigned special topics for report under economics 13.

The problem of household expenditure is to get the largest return from a given income. Statistics and experience show that certain items of expenditure are always in a certain proportion to income. A knowledge of what has been written on this subject is therefore of value to the housekeeper. The subject will be treated in connection with the labor problem and theory of consumption, (Economics 12 and 13).

PHYSIOLOGY

Work in this course consists of microscopical and chemical study of food and digestion.

Required: Chemistry 1 and Zoölogy 10.

GENERAL DESCRIPTION OF COURSES

Following the description of each course of instruction will be found the necessary requirements, if any, for admission to that particular course. Careful attention must be given to these requirements and to the sequence of studies thus indicated. For instance, under Architecture 4, for students of the College of Engineering, page 171, there are required "Physics 1 and 3," and "Architecture 2 and 3." Turning now to these subjects, it is found that physics 1 and 3 are the major course of one year, architecture 2 is wood construction, and architecture 3 is metal construction. All these subjects must be satisfactorily passed before admission may be had to the class in architecture 4.

In case a course not required for graduation is selected by less than five students, the right to withdraw the same for the term is reserved.

Graduate courses of instruction are described under the various subjects, as a rule after the undergraduate courses. They are numbered upward from 100. Other courses may often be arranged by the professors in charge to meet the special requirements of students. The subjects in which graduate courses are announced for 1899-1900 are as follows:

Agriculture, architecture, botany, chemistry, civil engineering, Danish language, economics, electrical engineering, French, geology, Greek, history, mechanical engineering, municipal and sanitary engineering, pedagogy, philosophy, psychology, theoretical and applied mechanics, zoölogy.

Credit is reckoned in semester "hours," or simply "hours." An "hour" is either one class period a day for one semester, each class period presupposing two hours' prepara-

tion by the student; or the equivalent in laboratory, shop, or drawing room.

The semester, the days, and the class period or periods during which each course is given, and the number of "hours" it counts, are shown after each course, as follows: The semester is indicated by the Roman numerals I, II; the days, by the initial letters of the days of the week; the class period or periods (of which there are nine each day, numbered consecutively from one to nine), by Arabic figures; and the "hours" or amount of credit, by Arabic figures in parentheses. For example, after the description of Agriculture 4, (p. 169) occur the abbreviations II.; M., W., F.; 2; (3). These are to be read second semester, Monday, Wednesday, and Friday, second period, three "hours."

AGRICULTURE

1. Agricultural Engineering.—Study of farm machinery, its use and abuse; fences, kinds and construction; laying out and construction of farm drains, etc. *II., second half; daily; 1 and 2; (2½).* Assistant Professor Holden.

2. Agricultural Crops.—Yields, distribution, and cost of production, and methods of handling farm crops. Varieties for different sections of Illinois. Conditions of growth and methods of securing the same by cultivation. *II.; daily; 5; (5).* Assistant Professor Holden.

Required: Chemistry 1.

3. Fertility.—Influence of fertilizers on the amount, character, and composition of crops. Effects of particular crops upon fertility and upon each other, when grown in succession or together. Nitrogen and leguminous crops. Conservation of fertility by the rotation of crops. Economic sources of the elements of fertility; fertilizers and manures, their valuation and use under both extensive and intensive methods. *II.; daily; 6; (5).* Assistant Professor Holden.

Required: Botany 1; Chemistry 1, 3a, 4.

4. Comparative Agriculture.—Influence of locality, climate, soil, race, customs, laws, religion, etc., upon the agriculture of a country, and incidentally upon its people. One crop only, and its effect, as rice; Indian corn in American agriculture and affairs. Varying conditions under which the same crop may be produced,

as wheat. Statistical agriculture. Influence of machinery and of land titles, whether resting in the government, in landlord, or in occupant. Relation of agriculture to other industries and to the body politic. *II.; M., W., F.; 2; (3).* Professor Davenport.

Required: Two years of University work.

5. Agricultural Experimentation.—A systematic study of the work of experiment stations and experimenters in this and other countries, together with a critical study of correct principles and methods of experimentation, especially designed for such students as desire to fit themselves for work in original investigation in experiment stations or elsewhere. *I.; Tu., Th.; 2; (2).* Professor Davenport.

Required: Two years of agriculture.

6. There is required for graduation one year of original investigation in some agricultural subject, the methods and results of which are to be embodied in the form of an acceptable thesis. *I. and II.; arrange time; (10).*

ANIMAL HUSBANDRY

1. Live Stock.—Origin of the breeds of domestic animals and their distinguishing characters; adaptation of breeds for particular purposes and their value for grading, accompanied by critical study and practice in the art of judging both as to breed type and as to constitution and individual merit; care, and management of the live stock of the farm as to housing and feed, particularly directed to the economic sources of feeding stuffs, their equivalency and suitable preparation. *I.; M., Tu., W., Th.; 1; (4).* Professor Davenport.

2. Stock Feeding.—Functional activities of the animal body and the end products of their metabolism. Foods are considered, first chemically, as affording the materials for these activities, whether in construction of body tissues or of animal products, as meat, milk, etc.; second dynamically, as supplying the potential energy for these processes, and for labor, speed, etc. A study of the development of the animal after birth and of the phenomena of animal nutrition from the economic standpoint, in which animal activity is considered as an agent for transformation of energy and the resultant product as a source of profit. *I.; first half; daily; 3; (2½).* Professor Davenport.

Required: Botany 4; Physics 2; Physiology 4; Zoölogy 1.

3. Stock Breeding.—Variation, its extent and importance, both in nature and under domestication; how far inherent and how far

induced by environment. Correlated variation. Selection. Survival of the fittest. Effects of use and disuse. Intercrossing. Hybridism. Grading. Breeding in line and inbreeding. Instinct and intelligence. Acquired characters and their inheritance. The aim is to bring every known principle of reproduction to the assistance of the breeder's art, and to study the methods of successful breeders and their results. *I.; second half; daily; 3; (2½).* Professor Davenport.

Required: Zoölogy 3; Physiology 4 or entrance physiology.

ANTHROPOLOGY

1. General Anthropology.—This course begins with a study of the physical and psychical elements of ethnography. Theories as to the origin of man are discussed, and the various races of mankind are distinguished and described. Special attention is given to the historical and comparative study of customs, ceremonies, rights, beliefs, and folklore of primitive peoples, with reference to the common characteristics and fundamental instincts of mankind, and to the origin and growth of existing customs and social institutions. *I.; M., W., F.; 1; (3).* Assistant Professor Daniels.

Required: A major or minor course in economics, geology, psychology, or zoölogy.

ARCHITECTURE

2. Wood Construction.—Formulæ and data for computing dimensions and strength of columns, beams, girders, etc., of wood or metal, are given and applied in the solution of examples. Wood and its uses in construction and decoration, seasoning, shrinkage, defects, and modes of protection from decay. Construction and design of wooden floors, walls, ceilings, and roofs, and joinery, doors, windows, bays, inside finish, cornices, wainscoting, stairs, etc. *Kidder's Building Construction and Superintendence; Part I.; Jones's Logarithmic Tables. I.; M., W., F.; 6, 7, and 8; (3).* Assistant Professor McLane.

Required: General Engineering Drawing 1, 2.

3. Masonry and Metal Construction.—Foundations of stone, brick, concrete, and piles; materials employed in stone masonry, their uses, defects, qualities, and modes of preparation. Kinds of masonry and external finish. Tools for stone cutting and their use. Preparation of working drawings, with application to the arch, vault, and dome. Brick masonry, its materials, and bonds. Manufacture and

refining of cast iron, wrought iron, and steel, with processes of pattern-making, molding, casting, refining, rolling, etc., and standard dimensions or sections. Special properties and value of metal in a structure, designing a line of columns in mercantile building, and of beams, girders, and footings, together with the study of joints and connections. *Kidder's Building Construction and Superintendence, Part II., II.; Tu. F.; 6, 7, and 8; (3).* Assistant Professor McLane.

Required: General Engineering Drawing 1, 2.

4. Sanitary Construction.—Recitations and lectures, designs for special problems. Study of plumbing, trap ventilation, removal of wastes, construction of water closets, drains, and systems of water supply; sewage disposal. Water supply and fixtures in dwellings. *Gerhard's Sanitary Engineering; Lectures on Sewage Disposal. I.; Tu., Th., F.; 6; (3).* Assistant Professor McLane.

Required: Physics 1, 3; Arch. 2, 3.

5. Graphic Statics and Roofs.—Elements of graphic statics and applications in designing trussed roofs. Forces, equilibrium, reactions, moments, bending moments, and shears on beams, center of gravity, moment of inertia and kern of cross sections. Construction of wooden and of metallic roofs, mode of computing loads on roof trusses, obtaining end reactions, drawing strain diagrams, and determining sectional dimensions of members, with the designing of joint connections. *Ricker's Trussed Roofs; Ricker's Elements of Graphic Statics. II.; M., W., F.; Section A, 1, Section B, 2; also 3 hours' drawing a week; (3).* Assistant Professor McLane.

Required: Math. 2, 4, 6; Theoretical and Applied Mechanics 1 and 2 or 4 and 5.

6. History of Architecture.—Continues through the year and is taken with architecture 7 and 11. Commencing with Egyptian and ending with modern styles, a careful study is made of the more important styles, examining historical conditions, local and inherited influences, structural materials and system, special ornaments, purposes and designs of the buildings, with the most important typical examples of each style. Especial attention given to ideas useful or suggestive in American work, and to tracing gradual evolution of architectural forms. One recitation and two illustrated lectures a week. References made to Fergusson, Lubke, Durm, Reber, Gailhabaud, etc. *Hamlin's History of Architecture; Van Dyke's History of Painting; Marquand's History of Sculpture. I.; M., Tu., W.; 4; (3). II.; M., Tu., W.; 3; (3).* Professor Ricker.

Required: Architecture 4.

7. Details of Styles.—Exercises in drawing at large scale the most important details of the Grecian, Roman, Early Christian, Byzantine, Mohammedan, Romanesque, Gothic, and Renaissance styles. Taken with Architecture 6. *Notes and Sketches. I.; Th.; 1, 2, 3, and 4; (1). II.; W.; 6, 7, and 8; (1).* Assistant Professor McLane.

Required: Architecture 2, 3, 8.

8. The Orders of Architecture.—A study of the Five Orders of Architecture, and architectural Shades and Shadows. A careful study of the proportions and details of the Orders is first made with lectures, recitations, blackboard sketches from memory, and problems requiring the use of the Orders. *Ware's Five Orders; Lectures on Shades and Shadows. I.; Tu., 4, 6, 7, and 8; Th., 6, 7, and 8; (3).* Assistant Professor Temple.

Required: Gen. Eng'g Drawing 1, 2; Architecture 20 or 21.

9. Monthly Problems.—Preliminary instruction in rendering.—An entire day in each month during the second and third years is devoted to a problem in design, requiring the use of the Orders. Program is made known at beginning of the exercise, and sketches must be completed and rendered during the same day. Credit is given for this study only after the completion of each year. *I. and II., the last Th. in each month, all day; (½ for each semester).* Assistant Professor Temple.

Required: General Engineering Drawing 1, 2.

10. Working Drawings.—Conventional methods for representing the different parts of buildings in general and in detail, conventional colors and sectioning; systems of lettering and figuring drawings; working drawings; tracing; drawing for copying. *II.; Tu.; 6, 7, and 8; (1).* Associate Professor White.

Required: Architecture 2 and 3.

11. Architectural Seminary.—Reports and discussions of original investigations of assigned topics in History of Architecture; reviews of books, abstracts of current technical journals, and other publications. Taken with Arch. 6 and 7. *I.; F.; 4; II.; F.; 3; (1).* Professor Ricker.

12. Superintendence, Estimates, and Specifications.—This study comprises several specialties not otherwise provided for, so far as they can be taught in a professional school. The subjects treated include the duties of a superintendent, his relations to architect, owner, and contractor, the method of supervising work, systems of keeping building accounts, the usual methods of measurement

of materials and work, arrangement of computations in proper and convenient order, and approximate prices of material and labor, which vary in different localities. The methods of estimating by squaring, cubing, units, and quantities are each employed and illustrated by problems. A study is made of the general and special clauses of specifications and of their arrangement, as well as of methods of classifying material to facilitate writing specifications. Practice is obtained by writing several sets. *Clarke's Building Superintendence; Lectures on Building Law; Ricker's Notes on Estimates; Bower's Specifications. I.; Tu., W., 5; Th., 4 and 5; (3).* Associate Professor White.

Required: Architecture 4.

13. Heating and Ventilation.—Scientific theory and practice of warming and ventilating buildings is the object of this study. Commencing with fuels and production of heat, then passing to flow of gases through ajutages and pipes, applying these data to calculation of dimensions of air ducts and chimneys. Different systems of heating by furnaces, hot water, steam, etc, are next examined, with details of each. Sources of impurity in the air and requirements of good ventilation are then considered, with the different methods of ventilation by aspiration, by fans, etc., ending with the study of fans of different types. Numerous problems are given, and heating plants designed. *Carpenter's Heating and Ventilating Buildings; Ricker's Notes on Heating and Ventilation. I.; M., F., 4 and 5; Tu., W., 4; (4).* Associate Professor White.

Required: Architecture 4, 15; Physics 1, 3.

14. Architectural Perspective.—Theory of perspective is taught with labor-saving methods of abbreviating work, and designing in perspective is made a special aim, being very useful to a draftsman in preparing sketches for clients. Problems in angular, parallel, vertical, and curvilinear perspective, as well as in perspective shades and shadows, are solved, requiring original work as far as possible, so as thoroughly to prepare the student for any kind of work in perspective, instead of restricting him to the study and use of a single system. *Ware's Modern Perspective. II., Tu., 6, 7, and 8; Th., 3, 6, 7, and 8; (3).* Assistant Professor Temple.

Required: General Engineering Drawing 1, 2; Architecture 2, 3, 8, 20 or 21.

15. Requirements and Planning of Buildings.—Lectures are fully illustrated by plans sketched on the blackboard, which must be embodied in students' notes. Numerous problems in planning are

given. *II.; M., W., Th., F.; 2 and 3; (3).* Associate Professor WHITE.

Required: General Engineering Drawing 1, 2; Architecture 2.

16. RESIDENCE DESIGN.—Practice in design, and study of the requirements for dwellings. The work is limited to residences, since this class of buildings is likely to afford the graduate his first opportunity for independent original work. *Osborne's Notes on House Planning.* Lectures and blackboard sketches to be copied in students' notes. *II.; Th., F.; 4 and 5; (2).* Associate Professor WHITE.

Required: Architecture 4, 8.

17. ARCHITECTURAL DESIGNING.—Elementary architectural forms are first traced and sketched from memory; simple problems in design are then solved by sketch plans, elevations and sections, rendered in shade or color as required. The object is to obtain as much practice in original design as possible, and to form a collection of suggestive tracings and sketches. *I.; M., W., F.; 1, 2, and 3; (3).* Assistant Professor TEMPLE.

Required: Architecture 6, 7, 8, 9, 11, 20 or 21.

18. ARCHITECTURAL COMPOSITION.—A careful study is made of the laws of architectural design and of the results of experience embodied in the text-book, with numerous references to other authors. Commences with general principles, passing to an examination of proportions employed in most important styles, arrangement of plan, external design in general and detail, ceilings, and interiors, arrangement of corridors, stairways, and entrances, of internal courts, and of halls for large assemblages. Frequent problems in design afford practical applications of the principles. *Ricker's Translation of Architektonische Composition* (Handbuch der Architektur). *II.; Tu, W., Th., F., 4 and 5; (4).* Professor RICKER.

Required: Architecture 6, 7, 11, 17, 20 or 21.

19. ARCHITECTURAL ENGINEERING.—This continues the study of graphic statics, commenced in "Graphic Statics and Roofs," with applications to metallic roofs of wide span, roof trusses of curved or unusual form, and those supported by abutments and jointed. Spherical and conical trussed domes. Effect of moving loads on girders, the graphical analysis of the arch, vault, and dome, and of the Gothic system of vault and buttress. Construction and details of steel skeleton buildings. Practical applications are made to a series of problems in design for specified cases. *Ricker's Notes on Advanced Graphics; Freitag's Architectural Engineering; Ricker's Translation of Wittman's Arch and Vault.* References to the works

of Planat, Landsberg, DuBois, Clarke, Ott, Levy, Muller-Breslau, etc., on Graphic Statics. *I; M., W., F.; 1; (3).* Associate Professor WHITE.

Required: Math. 2, 4, 6, 7, 9; Theoretical and Applied Mechanics 1 and 2; Architecture 2, 3, 4, 5.

20. ARCHITECTS' ART COURSE 1. Prescribed.

Any three of Art and Design 1, 2, 3, 5, 6, 13. *I; daily; (3).* Professor FREDERICK.

21. ARCHITECT'S ART COURSE. Optional.

Any three of Art and Design 5, 6, 7, 8, 11, 13. *I; daily; (3).* Professor FREDERICK.

Required: Architecture 20.

The art and design courses offered as Architecture 20 and 21 are varied to meet the special needs of students of architecture.

22. RENAISSANCE DESIGN.—A prescribed series of tracings of important details is made, and problems in design are worked out as fully as time permits. *I.; M., W., F.; 6, 7, and 8; (3).* Assistant Professor TEMPLE.

Required: Architecture 17, 18.

22b. RENAISSANCE DESIGN.—More advanced design of the same character as 22. This may be taken instead of Architecture 23 or 24. *I.; Tu., Th.; 1, 2, and 3; (2).* Assistant Professor TEMPLE.

Required: Architecture 17, 18, 22.

23. GOTHIC DESIGN.—*M., W. or Tu., F., 2 and 3; Th., 2; (2).*

24. ROMANESQUE DESIGN.—*I.; M., W. or Tu., F., 2 and 3; Th., 2; (2).*

In each of these courses, 23 and 24, a prescribed series of tracings of important details is made, and problems in construction and design are worked out as fully as time permits. The same lectures will be given in both courses, and will be illustrated by lantern slides and blackboard drawings. The work in Architecture 22b will be accepted in lieu of either of the above courses. *Ricker's Translation of "Redtenbacher's Leitfaden."* Professor RICKER and Associate Professor WHITE.

Required: Architecture 6, 7, 11, 14, 18, 20 or 21.

25. DESIGN OF ORNAMENT.—The study of historical ornament with exercises in designing architectural ornament to decorate the structural forms usually found in practice. These designs will be charcoal or crayon sketches, drawings rendered in shade or color, or finished drawings. They will be made on as large a scale as possible, usually full size. *Lectures. Meyer's Hand-book of Orna-*

ment. II.; M., Tu., W.; 3, 4, and 5; (3). Assistant Professor TEMPLE.

Required: Architecture 6, 7, 11, 17, 18, 20.

26. VACATION SKETCHES.—At the beginning of the third and fourth years, each student is expected to present a suitable number of vacation sketches for approval by Assistant Professor TEMPLE.

27. DOMESTIC ARCHITECTURE. (For a class of not less than six students in Household Economics).—The elements of the planning, sanitation, decoration, and furnishing of dwellings.

One lecture weekly on planning and arrangement, with exercises in making skeleton plans, by Associate Professor WHITE.

One lecture weekly on water supply and fixtures, sanitary fixtures and plumbing, heating and ventilation, by Assistant Professor McLANE.

One lecture weekly on decoration and furnishing by Professor RICKER.

A considerable amount of additional reading will be required. *II; Arrange time; 2, 3 or 4; (3).*

COURSES FOR GRADUATES

Primary

101. Construction of Extensive Wooden Buildings.

102. Recent Uses of Stone, Brick, and Terra Cotta in Architecture.

103. Metallic Skeleton Buildings.

104. Fire-resisting and Fire-proof Buildings.

105. Sanitation of Public and Semi-public Buildings.

106. Researches on the Evolution of Architectural Styles.

107. Higher Applications of Graphic Statics.

108. Heating and Ventilation of Large Buildings.

109. Higher Studies in Architectural Design.

110. Researches and Experiments in Applied Esthetics.

111. Translation of an approved Technical Architectural Work from the French or German.

112. Indexing and Classification of Periodicals, Books, Data, and Technical Information for Architects and Engineers.

Secondary

113. Stereotomy Applied to American Problems.

114. Examinations of Heating and Ventilation of Buildings.

115. Photography for Architects.

116. Methods of Reproducing Drawings, Specifications, etc., for Architects.

117. Higher Problems and Methods in Perspective.

118. Practice in Estimates, Specifications, etc., for Large Buildings.

119. Higher Industrial Design.

120. Advanced Water-color Painting.

121. Study of Office Methods and Arrangements.

122. Any *primary* offered in the College of Engineering.

123. Electric Lighting and Wiring for Buildings.

ART AND DESIGN

1. FREE-HAND PERSPECTIVE.—Lectures on free-hand perspective illustrated by drawing from geometric solids. Principles applied by drawing groups of common objects, as books, vases, chairs, etc.; casts of ornament; details of the human figure; interiors and exteriors of buildings; plants and flowers from nature. *Frederick's Notes on Free-hand Drawing. I.; daily; section A, 1 and 2, section B, 3 and 4, section C, 6 and 7; (3).* Mr. LEWIS.

2. CHIAROSCURO.—Drawings shaded in charcoal, crayon, or chalk, from still-life and casts of ornament (a preparation, following course 1, for courses 4, 5, 6, and 7). or from casts of the figure (a preparation for courses 3, 8, and 9). *Cross's Light and Shade. II.; daily; section A, 1 and 2, section B, 3 and 4, section C, 6 and 7; (3).* Mr. LEWIS.

3. THE ANTIQUE.—Artistic Anatomy of the human figure. Study of action and expression. Outline and shaded drawings from the antique figure. Study of the head and costumed model. *Momson's Anatomy for Art Students. I.; M., W., F.; 3 and 4; (3).* Professor FREDERICK.

Required: Art and Design 2

4. ELEMENTARY WATER COLOR PAINTING.—Study of casts and still-life in monochrome and color. *II.; daily; section A, 1 and 2, section B, 3 and 4, section C, 6 and 7; (3).* Mr. LEWIS.

Required: Art and Design 1.

5. ADVANCED WATER COLOR PAINTING.—Groups for study of composition and color. Fruit and flower from nature. Landscape sketching from nature. *II.; section A, M., W., F., 3 and 4; section B, M., W., F., 6 and 7; section C, Tu., Th., S., 3 and 4; (3).* Professor FREDERICK.

Required: Art and Design 4.

6. Oil Painting.—Groups in monochrome. Still-life, fruit, and flowers in color. *II.; section A, M., W., F., 3 and 4; section B, M., W., F., 6 and 7; section C, Tu., Th., S., 3 and 4; (3).* Professor Frederick.

Required: Art and Design 1, 2 or 4.

7. Advanced Oil Painting.—Study of landscape and portrait painting. *II.; section A, Tu., Th., S., 3 and 4; section B, M., W., F., 6 and 7; (3).* Professor Frederick.

Required: Art and Design 6.

8. Modeling.—Copy of ornament; ornament from photograph; details of human face; time sketches from life. Casts are made of at least one modeled piece; arm, hand, or foot from nature; foliage, fruit, or vegetable from nature. *Frederick's Plaster Casts and How They are Made. I.; section A, Tu., Th., S., 3 and 4; section B, M., W., F.; 6 and 7; (3).* Professor Frederick.

Required: Art and Design 1 or 2.

9. Advanced Modeling.—Bas-relief from antique figure; anatomical rendering of an antique figure; bust from the antique; portrait from nature in the round or relief; copy of statuette; figure in round from photograph; original design introducing the figure. Casting from piece, sulphur, and gelatine molds. *II; Tu., Th., S.; 3 and 4; (3).* Professor Frederick.

Required: Art and Design 8.

10. Pen Rendering.—(Work with pen and ink arranged to suit the needs of students from all departments.)—Architectural rendering; birds, shells, flowers, etc.; drawings made with a view to their reproduction; book illustration; decorative lettering and design. *I.; section A, Tu., Th., S., 3 and 4; section B, M., W., F., 6 and 7; (3).* Professor Frederick.

Required: Art and Design 1 or 2.

11. Architectural Sketching. (This course, which is the same as course 4, during first half of semester intended primarily for students of architecture.)—Perspective in water-color; color as a means of interior decoration; sketching from nature. *I.; daily; 3 and 4; (5).* Professor Frederick.

Required: Art and Design 1, 4.

12. Relation of Design to Manufacture. (A course in industrial design, arranged for special students of design).—*II.; section A, M., W., F., 3 and 4; section B, M., W., F., 6 and 7; section C, Tu., Th., S., 3 and 4; (3).* Professor Frederick.

Required: Art and Design 5, 8, 10.

Lectures, open to all students in the department, on perspective, historic ornament, composition and design, are given at hours not devoted to work in the studios. Special students in Art and Design are expected to attend and do required outside work.

ASTRONOMY

4. General Astronomy.—Minor course. The course aims to supply a general knowledge of the facts of astronomy, a clear conception of underlying principles, and some acquaintance with the methods of arriving at these facts. Studies are made in the location of constellations and stars. In this course, practical questions are considered, though not made matters of chief importance, the literary and purely scientific features of the science being assigned chief prominence. *Young's Elements of Astronomy,* also *Young's General Astronomy. II.; daily; section A, 4; section B, 6 (5).* Professor Myers and Mr. Brenke.

Required: Mathematics 4.

5. General Astronomy and Cosmogony.—This is a continuation of course 4, and together with 4 it constitutes a line of study for students who wish to pursue astronomy as a major subject. In the latter part of this course the evidence both for and against the Nebular Theory is reviewed. The rôle cf the tides in cosmogonic development receives special consideration, and the present view of the origin and cosmic history of the earth-moon system, together with the testimony of astronomy relating to it, are recapitulated to the epoch where astronomy yields to geology. A summarized statement of the results of the researches of Darwin and of Lord Kelvin is included. *I.; M., W., F.; 6; (3).* Professor Myers and Mr. Brenke.

Required: An entrance credit in astronomy.

6. Practical Astronomy.—This course, which is offered both for engineers and special astronomical students, is intended to give the student training in the use of instruments of precision. As a subordinate matter, he is introduced to instruments of a higher grade than those employed in ordinary surveying. A second purpose of the course is to train the student in the art of computing. Model forms of record and reduction for problems are set before him. and the advantage of compact and orderly arrangement of all work is strenuously insisted upon. As a concrete outcome of the above training, the student should acquire the ability to determine latitude, time, and azimuth with such instruments as are used in the ordinary

practice of civil engineering. An essential part of the work is the theory of astronomical instruments. *Campbell's Practical Astronomy. I.; Tu., Th.; 1 and 2; (2).* Professor Myers and Mr. Brenke.

Required: Astronomy 4.

7. Theory of Orbits and Special Perturbations.—This course embraces the following subjects: The formation and integration of the differential equations of motion of a system of bodies and the derivation of the laws of undisturbed elliptic, parabolic, and hyperbolic motion. An investigation of the various formulæ and methods for finding the special perturbations of a heavenly body constitutes an essential part of this course. The methods of Encke, Hansen, and of Variation of Parameters, are developed and studied at length. *Oppolzer's Lehrbuch der Bahnbestimmung.* Professor Myers.

Required: Mathematics 1, 3, 7, 9, 14, 16; Astronomy 4. [Not given in 1899-1900.]

9. Celestial Mechanics.—This course is a continuation of course 7, and has to do chiefly with the development and discussion of the absolute perturbations both for the case in which the orbital eccentricities and inclinations are small, and in which they are so large as to make the ordinary series too slowly convergent, or even divergent. Some time is also given to the study of subjects connected with figures of equilibrium of the heavenly bodies, and such other questions as are treated in Tisserand's Mecanique Celeste. Professor Myers.

Required: Astronomy 7. [Not given in 1899-1900.]

11. Calculus of Variations.—See Mathematics 20.

12. Spherical Harmonics.—See Mathematics 21.

13. Potential Function.—See Mathematics 22.

10. Astronomical Seminary and Thesis.—The work of this seminary is on subjects either related to those considered in the senior courses, or connected with questions arising out of thesis investigations. This course is given in conjunction with Astronomy 7 and 9, or with Mathematics 12 and 13, according as the one or the other is current. *I. and II.; Tu., Th.; 7; (2).* Professor Myers.

BIOLOGY

1. Elementary Biology.—This is a laboratory and lecture course on the morphology, physiology, and œcology of both botanical and zoölogical types. The work is so directed as to lead to an

acquaintance with the simpler generalizations of biology, and is intended as a preparation for the more extensive and thoroughgoing work of the major courses in botany and zoölogy. *I.; daily; 1 and 2; (5).* Assistant Professor SMITH and Mr. YOUNG.

2. ADVANCED GENERAL BIOLOGY.—For those who have taken a year's work in either botany or zoölogy, a single term of general biology is offered and especially recommended. It is intended to review, systematize, extend, and unify the student's knowledge of the phenomena and laws of life and of the relations of plant and animal, of living and non-living matter, and of biology to the other sciences. It will be taught as a seminary subject, with occasional lectures and assigned readings. It is primarily a junior or senior study. *II.; daily; 6 and 7; (5).* Professors BURRILL and FORBES.

Required: A major course in Botany or Zoölogy.

BOTANY

1. HISTOLOGY AND PHYSIOLOGY.—General vegetable histology and vegetable physiology, or an introductory study of the cells and tissues of plants and their courses of development in structures and organs; and studies in the general activities of plants correlated with external conditions. Lectures or recitations and laboratory work. *II.; daily; 6 and 7; (5).* Professor BURRILL and Mr. YOUNG.

Required: Entrance credit in Botany, or Biology 1; Chemistry 1; Art and Design 1.

2. MORPHOLOGY.—The general morphology and taxonomy of plants, including a study of selected types in each of the great divisions of the vegetable kingdom. Lectures or recitations and laboratory work, with occasional field excursions. *I.; daily; 6 and 7; (5).* Professor BURRILL and Mr. YOUNG.

Required: Entrance credit in Botany, or Biology 1; Art and Design 1.

In courses 1 and 2 taken together, either in the order of the numbers or the reverse, there is offered a comprehensive treatment of the subject, to serve the double purpose of an introduction to the science for those who desire to continue the study, and as a complete course for general students. Each semester's work is, however, independent, and may be separately credited.

3. CYTOLOGY AND PHYSIOLOGY.—Mostly laboratory work and assigned reading. The course extends through the year, but the work of each semester may be credited separately under the designations of 3a and 3b. The first semester is devoted mainly to cytology and histology, with special attention to technique; during the second

semester experimental physiology receives chief attention. *I. and II.; daily; 1 and 2; (5 each semester).* Professor BURRILL and Mr. YOUNG.

Required: Botany 1.

4. TAXONOMY OF SPECIAL GROUPS.—Mostly laboratory and herbarium work, and assigned reading. Field excusions are required. The course extends through the year, but the work of each semester may be credited separately under the designations of 4a and 4b. The first semester is devoted mainly to spermaphytes, the second to sporophytes. *I. and II.; daily; 1 and 2; (5 each semester).*

Required: Botany 2.

5. BACTERIOLOGY.—An introduction to the knowledge of the subject and instruction in methods. Only those who can give extra time when occasion demands it should make application. *II.; daily; 3 and 4; (5).* Professor BURRILL and Mr. YOUNG.

Required: Chemistry 1, and at least one semester's work in Biology, Botany, or Zoölogy, in the University.

6. BACTERIOLOGY FOR SANITARY ENGINEERS.—Bacteriological methods and their application in water analysis and sewerage. *I. (last seven weeks); daily; 3 and 4; (2).* Professor BURRILL and Mr. YOUNG.

7. PLANT PATHOLOGY.—Diseases and injuries of plants. Mostly laboratory, herbarium, and field work and assigned reading. *I.; M., W., F.; 1 and 2; (3).* Professor BURRILL and Mr. CLINTON.

Required: Botany 1, 2.

8. ECONOMIC BOTANY.—Useful plants and plant products. Lectures and assigned reading. *I.; Tu., Th.; 1 and 2; (2).* Professor BURRILL. [Not given in 1899-1900.]

9. INVESTIGATIONS AND THESIS.—Research work upon selected subjects. Special arrangements for this work should be made during the preceding year. *I. and II.; daily; arrange time; (5).* Professor BURRILL.

Required: Botany 1, 2, and at least one year from 3, 4, 5, 7.

10. SEMINARY.—Reports and discussions upon assigned topics and results of research work. For advanced and graduate students. *I. and II.; F.; arrange time; (1).* Professor BURRILL.

COURSES FOR GRADUATES

101. Biological Botany.
102. Systematic Botanv.
103. Bacteriology.
104. Evolution of Plants.

CHEMISTRY

1. Minor Course.—Elementary and Experimental Chemistry.—This course deals with the general principles of the science; the commoner elements only and their typical compounds are studied, and these are considered largely for the purpose of illustration.

The laboratory work comprises a series of such experiments, many of them quantitative, as serve best to illustrate the relations between the observed facts and the general principles, and to familiarize the student with the methods of chemistry. *Remsen's Introduction to Chemistry. I.; Lecture, M., Tu., W., F., 5; Laboratory, section A, M., W., F., 1 and 2; section B, M., W., F., 7 and 8; section C (engineers only), Tu., Th., 7 and 8; for engineers, (4); for all others, (5).* Professor Palmer, Assistant Professor Grindley, Mr. Sammis, and Mr. Sy.

2. Descriptive Inorganic Chemistry.—This course is required of all chemical students. It is mainly devoted to a study of the metallic elements, their classification, compounds, and chemical properties. The work is from lectures and assigned texts, without laboratory work. *Remsen's Advanced Course. II.; M., W., F.; 1; (3).* Assistant Professor Grindley.

Required: Chemistry 1.

2a. Inorganic Preparations.—This is a laboratory course designed to accompany the descriptive work of course 2. The work includes the precipitation, crystallization, and purification of various salts, the material being largely obtained from laboratory wastes. *Thorpe's Inorganic Chemical Preparations. II.; Tu., Th., S.; 3 and 4; (3).* Assistant Professor Grindley, and Mr. Sy.

Required: Chemistry 1.

3a. Qualitative Analysis.—This course includes a study of salts, their formation, solubilities, chemical reactions, etc. The periodic classification of the elements is made the basis for developing the principles of analysis. The work in the laboratory, after illustrating these principles, is occupied with the determination of basic and acid constituents of a given number of unknown substances. Analysis is also made of more complex substances, including natural and commercial products; and the work concludes with a comparative study of methods, difficult separations and problems in synthesis. *II.; Lecture, section A, Tu., Th., 5; section B, Tu., Th., 8; Laboratory, daily, section A, 3 and 4; section B, 6 and 7; (5).* Professor Parr, Assistant Professor Grindley, Mr. Sammis, and Mr. Sy.

Required: Chemistry 1.

3b. QUALITATIVE ANALYSIS, same as 3a, but requiring the first half of the *semester; (2½)*. Professor PARR, Assistant Professor GRINDLEY, Mr. SAMMIS, and Mr. SY.

Required: Chemistry 1.

4. ELEMENTS OF ORGANIC CHEMISTRY, MINOR.—A course in organic chemistry, provided more especially for students of agriculture and natural science. The instruction is directed mainly to the consideration of the general characteristics and the mutual relations of certain of the more important classes of carbon compounds, particularly the fats, the carbohydrates, and the proteids. *II. (last half); Lecture, M., W., F., 3; Laboratory, Tu., Th., 3, 4, and 5; (2½).* Professor PALMER and Mr. SAMMIS.

Required: Chemistry 1, 3b.

5a. QUANTITATIVE ANALYSIS.—General principles and practice of gravimetric and volumetric analysis. This course is directed particularly to the general principles of quantitative analysis, including stoichiometry and the analysis of silicates. It is preliminary to all other courses in quantitative analysis. Lectures and assigned text from Fresenius, Cairns, and the journals. *I.; Lecture, M., W., 6; Laboratory, 10 periods a week, arrange time; (5).* Professor PARR and Mr. ROSE.

Required: Chemistry 3a.

5b. ANALYSIS OF VARIOUS INORGANIC SUBSTANCES, as clay, solids, ores, fertilizers, etc., etc. *II.; Lectures, Tu., 5; Laboratory, 6 or 12 periods a week; arrange time; (3 or 5).* Mr. ROSE.

Required: Chemistry 5a.

5c. EXAMINATION AND ANALYSIS OF FOODSTUFFS, as milk, butter, cereals, meats, etc. *II.; Lecture, Th., 5; Laboratory, 4 or 12 periods a week, arrange time; (2 or 5).* Assistant Professor GRINDLEY and Mr. ROSE.

Required: Chemistry 5a.

6a. CHEMICAL TECHNOLOGY.—This is a course of lectures comprising a study of technological chemistry as illustrated in those industries having a chemical basis for their principal operations and processes. Much use is made of the journals. *Thorpe's Industrial Chemistry* is used as a guide. No laboratory work. *II.; M., W.; 3; (2).* Professor PARR.

Required: Chemistry 3a.

6b. METALLURGY.—Special attention is given to the effect of impurities in ores upon metallurgical processes and finished products. Fuels, refractory materials, and fluxes are described and their value

and application explained. A series of lantern slides illustrating actual plants in operation together with specimens of furnace material and products are used in illustration. Much use is made of journals, annuals, and monographs setting forth the best practice. *I.; M., W., F.; 3; (3).* Professor PARR.

Required: Chemistry 5a.

7. PHYSICAL CHEMISTRY.—A course in physical chemistry, including thermo-chemistry, consisting mainly of laboratory work. It comprises determinations of vapor density, specific heat, depression of freezing point, elevation of boiling point, electrical conductivity, etc., and calculation of molecular and atomic weights from the data thus obtained, and the use of calorimeter, polariscope, and other instruments, in determining such constants as serve in characterization or for quantitaive estimation of chemical substances, or which serve as the basis of theoretical generalizations. *I. or II.; arrange time; (3, 5, or 10).* Professor PALMER.

Required: Chemistry 2, 5a; Physics 1, 3.

8. IRON AND STEEL ANALYSIS.—Analyses are made of all the constituents by both rapid or technical and standard methods. The course also includes the analysis of furnace slags and a study of the methods for decomposing ores and refractory products. *II.; daily; arrange time; (5).* Professor PARR.

Required: Chemistry 5a.

9. ORGANIC CHEMISTRY.—The work of this course consists in the detailed discussion of the characteristics of several of the more typical and simple organic compounds, followed by the briefer consideration of most of the important classes of the derivatives of carbon. *Remsen's Organic Chemistry* is used as a text-book, and *Richter's Organic Chemistry* as a reference book. Must be accompanied by either 9a, 9b, or 9c. *II.; M., W., F.; 7; (3).* Professor PALMER and Mr. ROSE.

Required: Chemistry 2, 5a.

9a. ORGANIC SYNTHESIS.—Laboratory work for students of the chemical course, consisting of the preparation of the typical organic compounds. *II.; arrange time; (2).* Professor PALMER and Mr. ROSE.

9b. ORGANIC ANALYSIS.—Laboratory work for students of the chemical course, consisting of either ultimate organic analysis or proximate organic analysis, or both. *I.; Laboratory, 9 or 15 periods a week; arrange time; (3 or 5).* Professor PALMER and Mr. ROSE.

9c. Laboratory work in organic chemistry for students of the

medical preparatory course. A few typical organic compounds are prepared, but the work consists mainly in a study of the chemical reactions and transformations of such organic substances as are especially involved in processes of nutrition or are used in medical practice. *II.; Laboratory, 6 or 15 periods a week; arrange time; (2 or 5).* Professor PALMER and Mr. ROSE.

10. SANITARY ANALYSIS.—The work consists in the examination and analysis of potable and mineral waters, air, etc. *I.; M., W., F., or daily; 3 and 4; (3 or 5).* Professor PALMER and Mr. ROSE.

Required: Chemistry 5a or 20.

11. INVESTIGATIONS AND THESIS.—Candidates for graduation from the chemical courses are required to devote at least three hours per day for one year to the investigation of some selected chemical subject, the results of which are to be embodied in a thesis. The subject must be determined upon by consultation with the professors of chemistry before the first Monday in November. Between that time and the end of the holiday recess an index to the bibliography of the subject must be prepared and presented to the professor in charge of the investigation. *I. and II.; 15 periods a week; arrange time; (5 each semester).* Professors PALMER and PARR, and Assistant Professor GRINDLEY.

Required: Chemistry, 30 hours.

12. THEORETICAL CHEMISTRY.—A course of instruction which includes discussions of the principles and theories of general chemistry. *Ostwald's Outlines of General Chemistry,* and *Nernst's Theoretical Chemistry. II.; M., W., F.; 2; (3).* Professor PALMER.

Required: Chemistry 2, 5a, and either 4 or 9.

13. AGRICULTURAL CHEMISTRY.—A course of lectures upon the chemical principles and processes involved in agriculture, taken conjointly with laboratory practice in analysis of agricultural products and materials. The work includes the quantitative separation and estimation of the constituents of agricultural products, analysis of fertilizers, soils, rain and drain waters, plants, foods, dairy products, etc. *Johnson's How Crops Grow and How Crops Feed; Storer's Chemistry in Its Applications to Agriculture. I. and II.; daily; 3; (5 each semester).* Assistant Professor GRINDLEY.

Required: Chemistry 3b, 4.

14. ORGANIC CHEMISTRY.—Lectures and reading upon special chapters of organic chemistry. *I.; Tu., Th.; 7; (2).* Professor PALMER and ....

Required: Chemistry 9.

15. (a) and (b) METALLURGICAL CHEMISTRY.—This course includes (a) the wet assay of copper, lead, zinc, and other ores, arsenical and complex as well as the simpler forms, also the analysis of finished metallurgical products; as, commercial lead, spelter, copper, etc.; during the last half of the term the work is occupied (b) with the fire assay of lead, gold, and silver ores. Fluxes, reagents, and charges are studied in connection with various typical ores and practice given in use of the crucible and muffle furnaces and in the manipulations connected with fire assaying. *I.; M., W., F.; 3, 4, and 5; (3).* Professor PARR and Mr. ROSE.

Required: Chemistry 5a.

15. (c) and (d) ELECTRO-CHEMICAL ANALYSIS.—A study (c) of methods and practice in quantitative determination by electrolytic separation and deposition of metals and compounds, and (d) a study of the methods employed in the electrolytic separation and refining of metals, treatment of ores, etc. The laboratory work involves practice in actual separations, a quantitative check being made on all results. *II.; M., W., F., or daily; 3, 4, and 5; (3 to 5).* Professor PARR and Mr. ROSE.

Required: Chemistry 5a.

16. CHEMISTRY FOR ENGINEERS.—This course is arranged particularly for mechanical engineers. It involves the proximate analysis of coals, determination of calorific power, technical analysis of furnace gases, examination of boiler waters, lubricating oils, etc. *II.; Lecture, F., 5; Laboratory, section B, Th., 3, 4, 5; F, 3, 4; section A, W.; 4, 5; Th., 3, 4, 5; (3).* Professor PARR.

Required: Chemistry 1.

17. INDUSTRIAL CHEMISTRY.—A laboratory course in the preparation of chemical products from raw materials. The manufacture and proving of pure chemicals, fractionation, and other processes of the manufacturing chemist. *II.; daily; Laboratory 15 periods a week, arrange time; (5).* Professor PARR.

Required: Chemistry 5a, 18.

18. SPECIAL ADVANCED COURSES—Special courses as indicated below, consisting mainly of laboratory work, may be arranged for those competent to pursue them. From 1 to 10 hours' credit will be allowed in the undergraduate courses for such work.

(a) Technical Gas Analysis, 1 hour to 3 hours.

(b) Metallurgical Chemistry, 3 hours to 10 hours.

(c) Chemistry of beet sugar industry, 2 hours to 10 hours. *Arrange time.* Professors PALMER and PARR.

19. SEMINARY.—Reports and discussions upon assigned topics from current chemical literature. One session each fortnight during the junior and senior years. *S.; (1).* Professor PALMER and Mr. ROSE.

20. QUANTITATIVE ANALYSIS.—An elementary course intended especially for such students of other departments as desire some training in the processes of quantitative analysis, but have not the time or the opportunity to enter the regular course in this subject. The work may vary in character, to some extent, according to the need of the individual student. *I. or II.; any two or four days; arrange time; (2 or 3).* Mr. ROSE.

21. PROXIMATE ORGANIC ANALYSIS.—The analysis and valuation of various commercial organic materials and products, including fats, oils, food stuffs, beverages, plants, drugs, medicines, nostrums, etc. *One or two semesters; Laboratory, 15 periods, arrange time; (5 or 10).* Professor PALMER and Mr. ROSE.

22a. PHOTOGRAPHY.—Offered especially for scientific students and others desiring a more thorough knowledge of photography than is offered in course 22b. This course is of special value to any intending to teach those branches in which the optical lantern is extensively used. The early part of the course is devoted to a general review of the methods and practices of photography, with sufficient laboratory work to make the student familiar with the same. Following this some time is devoted to the optical lantern, with sufficient practice on the part of the student to familiarize him with the manipulation of such apparatus. This is accompanied by instruction in the making and use of lantern slides. Instruction in photomicrography also has a place in this course, and students so desiring may pursue such work as far as time and the facilities of the department will allow. *I.; M., W., F.; 6 and 7; (2).* Professor PARR and Mr. WILDER.

Required: Chemistry 3a; Physics 1, 3.

22b. PHOTOGRAPHY.—Offered for engineering students and others who wish to obtain a general knowldege of photography. In this course the general subject is covered by lectures and laboratory work, the latter varying to some extent to suit the special line of work that the student expects to follow. *II.; M., W., F.; 6 and 7; (2).* Professor PARR and Mr. WILDER.

Required: Physics 1, 3; Chemistry 3b, unless otherwise arranged.

22c. REPRODUCTION OF DRAWINGS, ETC.—Provision is here made for a general course in the methods of reproduction made use of in the engineering professions. Blue-printing, black-printing, hecto-

graphing, and the other methods in use are explained by lectures and laboratory work. No distinct credit is given for such work, but the time so spent is deducted from that required in other courses, and so credited to the student doing the work. This work is offered to such students as may be required to do it as a part of some regular course, the time so spent to be determined by the instructor having such regular course in charge, and to students who elect it with approval of the proper authority. Mr. WILDER.

23. (a) and (b). HOUSEHOLD CHEMISTRY.—The first semester is largely devoted to practice in general analytical methods, both gravimetric and volumetric. The second is occupied chiefly with the examination of materials used in the household. Analyses are made of baking powders, vinegars, syrups, sugars, soaps, soap powders, wall papers, etc. *I. and II.; daily; 6 and 7; (5 each semester).* Professor PARR and Mr. ROSE.

Required: Chemistry 3a.

24. TOXICOLOGY.—Mainly laboratory work upon the detection and estimation of the more common poisons, organic and inorganic. *I. or II.; Laboratory 6 to 15 periods, arrange time; (2 to 5).* Professor PALMER and Mr. ——

Required: Chemistry 2, 3b, 5a, and either 4 or 9.

25. URINALYSIS.—Chemical and microscopic examination of urine. *I. or II.; Laboratory 6 periods, arrange time; (2).* Mr. ROSE.

Required: Chemistry 2, 3b, 5a.

COURSES FOR GRADUATES

101. ORGANIC CHEMISTRY.—Special investigations in the aliphatic or in the aromatic series.

102. INORGANIC CHEMISTRY.—Research work in general inorganic chemistry, including the critical and constructive study of methods of analysis, both quantitative and qualitative.

103. PHYSICAL CHEMISTRY.—Investigation of special problems, including also thermo-chemical research.

104. CHEMISTRY OF FOODS.—Investigations of the composition, fuel value, digestibility, and dietary value of foods and the chemical changes involved in cooking.

105. AGRICULTURAL CHEMISTRY.—Special investigations in the field of agricultural chemistry, including the chemistry of plants, foods, soils, and rain, drain and ground waters.

106. RESEARCH IN METALLURGICAL CHEMISTRY.—(a) Action of

solvents in extraction of gold and silver from their ores. (b) Methods of analysis of ores and products.

107. INVESTIGATION OF WATER SUPPLIES.—In connection with State Water Survey.

108. INVESTIGATION OF FUELS.—
- (a) Heating power, calorimetric methods.
- (b) Adaptation of bituminous coal to gas manufacture, purification of products.
- (c) Coke and by-products.

109. SPECIAL PROBLEMS IN INDUSTRIAL CHEMISTRY.—
- (a) Corrosion and scaling of steam boilers.
- (b) Purification of feed waters.
- (c) Cements and mortars.
- (d) Paints and pigments.

CIVIL ENGINEERING

1. LAND SURVEYING.—Areas and distances by chain, compass, and plane table; U. S. public land surveys, including legal points involved in the reëstablishment of boundaries; magnetic variation and determination of true meridian. The students solve numerous problems in the field with instruments. *Bellows and Hodgman's Surveyor's Manual. I.; daily; 6 and 7; (5).* Associate Professor PENCE.

Required: General Engineering Drawing 1, 2; Math. 3.

2. TOPOGRAPHICAL DRAWING AND SURVEYING.—Topographical drawing is given during the bad weather of the first semester. During the second semester topographical surveying is taught, in which students solve problems with the plane table and the stadia, and make a topographical survey and plot the notes. This subject must be taken the first semester in connection with course 1 above, and the second semester in connection with course 3 below.

3. TRANSIT SURVEYING AND LEVELING.—Construction, adjustment, and use of the transit and level; angles, inaccessible distances, and areas with the transit; profiles and contours with the level. The instruments are in constant use by the students whenever the weather permits. In connection with this subject students may receive instruction in blue-printing, etc.; chemistry 22c. *Baker's Engineers' Surveying Instruments. II.; daily; 6 and 7; (5).* Associate Professor PENCE.

Required: Civil Engineering 1.

4. RAILROAD ENGINEERING.—In the field practice the class makes

preliminary and location surveys of a line of railroad of sufficient length to secure familiarity with the methods of actual practice. Each student makes a complete set of notes, maps, profiles, calculations, and estimates. *Godwin's Railroad Engineers' Field-Book, and Tratman's Track. I.; daily; 2, 3, 4; (5).* Associate Professor PENCE.

Required: Civil Engineering 1, 2, 3.

4a. RAILROAD ENGINEERING.—The first eleven weeks of course 4 are for students in municipal and sanitary engineering.

5. MASONRY CONSTRUCTION.—The students have experiments in the masonry laboratory, in testing cement, mortar, stone, and brick. *Baker's Masonry Construction. I.; M., Tu., W., Th., 1; Laboratory F, 6 and 7; (5).* Professor BAKER.

Required: Theoretical and Applied Mechanics 2; General Engineering Drawing 1, 2.

6. GEODESY.—Geodesy is taught by lectures and assigned reading. *II.; W.; 4 and 5; (1).* Professor BAKER.

Required: Math. 3; General Engineering Drawing 1, 2; Civil Engineering 1, 3; Descriptive Astronomy 4.

10. SURVEYING.—For students in the courses of architecture, architectural engineering, electrical engineering, and mechanical engineering. Areas with chain and compass, U. S. public land surveys, and principles of reëstablishing corners; use of transit in finding distances, areas, and in laying out buildings; use of the level in finding profiles and contours. *Baker's Engineers' Surveying Instruments. II.; M., Tu., W.; section A, 1 and 2; section B, 3 and 4; (3).* Associate Professor PENCE.

Required: Math. 4; General Engineering Drawing 1, 2; Physics, 1, 3.

12. BRIDGE ANALYSIS.—Instruction and practice are given in the computation of the stresses in the various forms of bridge trusses, by algebraic and graphical methods, under different conditions of loading. *Johnson's Modern Framed Structures. I.; daily; 2 and 3; (5).* Professor BAKER.

Required: Theoretical and Applied Mechanics 2; Architecture 5.

13. BRIDGE DETAILS.—The student makes a tracing of a shop drawing of a bridge, and then makes a critical report upon each element of the design and computes the cost. Afterward a comparative study is made of the several forms of details employed by leading designers. This must be taken with course 12 above during the first semester, and with course 14 below during the second semester.

Required: Civil Eng'g 12 and free-hand sketches, with dimensions, showing full details of a bridge measured by the student.

14. BRIDGE DESIGN.—Each student designs a bridge, proportioning the sections and working out the details, and afterward makes a complete set of drawings. *II.; daily; 1 and 2; (5).* Professor BAKER.

Required: Civil Engineering 12, 13.

15. TUNNELING.—This subject is given by lectures and assigned reading. Students are required to make written reports upon the methods employed in particular tunnels. Some time is given to practice in boring wells, dredging, quarrying, and sub-aqueous blasting. *II.; W.; 4 and 5; (1).* Professor BAKER.

Required: Math. 1, 3, 6; General Engineering Drawing 1, 2; Mechanical Engineering 1, 16, 17; Chemistry 1; Physics 1, 3.

16. ENGINEERING CONTRACTS AND SPECIFICATIONS.—A study is made of the fundamental principles of the law of contract, and of examples of the general and technical clauses of various kinds used in engineering specifications. *Johnson's Engineering Contracts and Specifications. II.; M., Tu.; 3; (2).* Professor BAKER.

Required: Civil Engineering 5, 12, 13; Municipal and Sanitary Engineering 2, 3.

17. RAILROAD STRUCTURES.—Instruction is given by lectures and references to standard authorities. Current practice is studied by the examination of existing structures and by means of a collection of the standard drawings of leading railroads. *II.; Th., F.; 3 and 4; (2).* Associate Professor PENCE.

Required: Civil Engineering 4.

COURSES FOR GRADUATES

All primary unless otherwise stated.

101. Location and Construction.
102. Railway Track and Structures, and their Maintenance.
103. Yards and Terminals.
104. Motive Power and Rolling Stock.
105. Signal Engineering.
106. Railway Operation and Management.
107. Bridge Designing.
108. Cantilever and Swing Bridges.
109. Metallic Arches.
110. Metallic Building Construction.
111. Roof Construction.

112. Stereotomy.

113. History of the Development of Bridge Building—Secondary.

128. Practical Astronomy.

129. Description of Work Done.

130. Critical Description of Engineering Construction.

131. Translation of Technical Engineering Work from French or German.

132. Any Primary in Theoretical and Applied Mechanics or Municipal and Sanitary Engineering.

133. Any Primary in Mathematics, Mechanical Engineering, or Electrical Engineering—Secondary.

134. Indexing of Civil Engineering Periodical Literature—Secondary.

DAIRY HUSBANDRY

1. Dairy Management.—Origin and development of the various breeds of dairy cattle; noted families and individuals in the different breeds; judging, best breeds for grading purposes; improvement of a herd by testing; care and selection; methods of management of a dairy herd; best feeds for the economical production of milk; construction and care of dairy barns. *I.; F.; 1; (1).* Mr. Fraser.

2. General Dairying.—Secretion of milk; its composition as determined by chemical analysis and by microscopic examination. General facts concerning bacteria in their special relation to milk, butter, and cheese. Methods of preventing contamination. Development of acid and the acid test. Pasteurization. Different methods of testing for fat contents, total solids, and adulterations. Variations in milk and their causes. Economic production of milk. Use and care of cream separators. Comparison of different systems of creaming and the making of butter by the most approved methods. *II., first half; 1 and 2; (2½).* Mr. Fraser.

3. Butter Making.—Operation of, and studies in efficiency of, different separators in comparison with gravity methods of creaming under a variety of conditions. Influence of character of milk and its handling upon the quality of butter. Different methods of ripening cream and the effect upon churning and upon butter, together with an extended practice in the manufacture and in scoring of butter. *II., second half; 1 and 2; (2½).* Mr. Fraser.

DRAWING, GENERAL ENGINEERING

1a. ELEMENTS OF DRAFTING.—Geometrical constructions; orthographic, isometric, and cabinet projections. *Tracy's Mechanical Drawing. I., first half; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2½).* Assistant Professor PHILLIPS and Mr. NEVINS.

1b. DESCRIPTIVE GEOMETRY.—Problems relating to the point, line, and plane. *Church's Descriptive Geometry. I., second half; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2½).* Assistant Professor PHILLIPS and Mr. NEVINS.

Required: Drawing, General Engineering 1a.

2a. DESCRIPTIVE GEOMETRY.—The generation and classification of lines and surfaces; planes tangent to surfaces of single and double curvature; intersections, developments, and revolutions. *Church's Descriptive Geometry. II.; Tu., Th.; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2).* Assistant Professor PHILLIPS and Mr. NEVINS.

Required: Drawing, General Engineering 1a, 1b.

2b. LETTERING.—Plain and ornamental alphabets; free-hand and mechanical lettering; titles and title pages. *Jacoby's Plain Lettering. II., first half; M., W., F.; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (1½).* Assistant Professor PHILLIPS and Mr. NEVINS.

Required: Drawing, General Engineering 1a.

2c. SKETCHING AND PRACTICAL DRAWING.—Architectural sketch plans and details; bridge details; machines, machine parts, and mechanisms; working drawings; drawings finished in color and right line shading. Lectures on drafting instruments and materials; computing instruments; office methods, and reproduction processes. *Lectures and notes. II., second half; M., W., F.; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (1½).* Assistant Professor PHILLIPS and Mr. NEVINS.

Required: Drawing, General Engineering 1a, 1b.

3. ADVANCED DESCRIPTIVE GEOMETRY.—For students making a specialty of mathematics. Curved lines of the higher orders; higher single curved, warped, and double curved surfaces. *Church's Descriptive Geometry,* with references to *Warren's General Problems from the Orthographic Projections of Descriptive Geometry. II.; M., W., F.; arrange for two periods; (3).* Assistant Professor PHILLIPS.

Required: Drawing, General Engineering 1a, 1b, 2a.

ECONOMICS

1. Introductory Course.—This is a beginners' course, consisting of two parts:

a. Principles of Economics.—This course is introductory to the more advanced courses. Attention is confined to the underlying principles of the science. *I.; M., W., F.; 5; (3).* Dr. Hammond.

b. English Economic History.—In this course the economic development of a great commercial and industrial nation is traced from its primitive stages to the present time. The relations are traced between this historic development and the principles discussed in course *a*. This course should accompany course *a*, and is required of all students in the political science group. *I.; Tu., Th.; 5; (2).* Dr. Hammond.

2. Principles of Economics.—This is a course in general economics offered primarily to junior and senior students of high standing in the colleges of agriculture, engineering, and science. Emphasis is laid on the practical side of economic questions. *II.; M., W.; 7; (2).* Professor Kinley.

Required: Two years of University work.

3. Money and Banking.—In this course a study of the history and functions of money is followed by a study of the monetary and banking history of the United States and of such topics as the theory of prices, credit, government paper, the money market, etc. *II.; M., W., F.; 5; (3).* Professor Kinley.

Required: Economics 1 or 2.

4. Financial History of the United States.—This course begins with Hamilton's administration of the Treasury. It deals with the growth and management of the national debt, and with the industrial expansion and the tariff history of the country. *I. and II.; Tu., Th.; 5; (2).* Professor Kinley.

Required: Economics 1 or 2.

5. Public Finance.—This course consists of a critical comparative study of financial theories and methods. Especial attention is directed to American conditions. Public expenditure and its relation to the various sources of revenue; taxation, its theory, incidence, and methods; public debts, financial administration, and budgetary legislation, are among the subjects discussed. *II.; M., W., F.; 1; (3).* Dr. Hammond.

Required: Economics 1 or 2.

6. TAXATION.—This course gives a more detailed treatment of the problems of American taxation than is possible in course 5. The reports of state tax commissioners are reviewed and criticised, and an attempt is made to develop a system of taxation that shall meet the requirements of our state and local governments. Lectures, reports, and discussions. *II.; M., W.; 7; (2).* Dr. HAMMOND.

Required: Economics 1 or 2 and must be preceded or accompanied by Economics 5. [Not given in 1899-1900.]

7. THE TARIFF PROBLEM.—This course deals briefly with the various protection theories, and with the history of the tariffs of the U. S. and their influence upon the social and industrial development of the country. Lectures, assigned readings, and discussions. *I.; W., F.; 1; (2).* Dr. HAMMOND.

Required: Economics 1 or 2. This course or course 9 will be given, as applicants prefer.

8. THE TRANSPORTATION PROBLEM.—This course deals with the problems of transportation, especially by railways, in their economic and social aspects. A comparative study is made of the development, management, and regulation of railways in Europe and the United States. Special attention is given to the problem of rate-making. Lectures, reports, and discussions. *II.; M., W.; 7; (2).* Dr. HAMMOND.

Required: Economics 1 or 2. The course is open without the requirement in economics to students in the College of Engineering who have taken Civil Engineering 4.

9. AGRICULTURAL PROBLEMS.—This course includes a discussion of the economic principles underlying the science of agriculture, a short history of the development of agriculture in this country, and a study of the problems and tendencies of American farming. Lectures and quizzes. *I.; W., F.; 1; (2).* Dr. HAMMOND.

Required: Economics 1 or 2.

10. ECONOMICS OF AGRICULTURE.—This is a ten weeks' course especially prepared for the students of the Winter School in Agriculture (see p. 138). The first part of the course is devoted to a study of the elements of economics, and the second part is given up to a discussion of some of the present day problems of American agriculture. *M., W., F., arrange.* Dr. HAMMOND.

11. STATISTICS.—A short course recommended to all who intend to take the advanced courses in economics. It is of a practical character, and is intended to furnish a knowledge of the statistical method, its limitations and abuses, and to enable the student to use intelligently

government reports, statistical publications, trade papers, etc. Lectures, reports, and discussions. *II.; Tu. Th.; 3; (2).* Dr. HAMMOND.

Required: Economics 1a or 2.

12. THE LABOR PROBLEM.—This course is a study of the labor movement and its social significance. Readings, lectures, and quizzes. *I.; M., W., F.; 5; (3).* Professor KINLEY.

Required: Economics 1 or 2.

13. THEORIES OF PRODUCTION AND CONSUMPTION.—This course is a study of the conditions of social prosperity as dependent on production and consumption. *I.; Tu., Th.; 7; (2).* Professor KINLEY.

Required: 10 hours in Economics.

14. DISTRIBUTION.—This course deals with the problem of distribution of wealth both in theory and practice. It includes a discussion of private property, of socialism and communism, and of sundry proposals, like the single-tax, for correcting the inequalities of wealth without fundamental changes in the structure of society. *I. and II.; Tu., Th.; 5; (2).* Professor KINLEY.

Required: 10 hours in economics; or, economics 1 or 2, and either Anthropology 1, or Public Law 1. [Not given in 1899-1900.]

15. PROBLEMS OF PAUPERISM AND CRIME.—This course begins with the history of poor relief in Europe and the United States. As full a discussion of the various methods of reform and prevention is given as the time will permit. *II.; Tu., Th.; 2; (2).* Dr. HAMMOND.

16. SOCIAL INSTITUTIONS.—This course includes a study of the more common forms of social groups, such as the family, the horde, the tribe, and the state. The structure and the development of these societies are discussed in the light of the principles presented in course 17. *II.; Tu., Th.; 2; (2).* Dr. HAMMOND.

Required: Economics 17. [Not given in 1899-1900.]

17. SOCIOLOGY.—An elementary presentation of social principles and phenomena, and a brief discussion of some of the recent theories advanced to explain the growth and structure of society. *I.; Tu., Th.; 2; (2).* Dr. HAMMOND.

18. THE MONOPOLY PROBLEM.—This is a study of the economic aspects of monopoly, the limits of competition, and the relation of monopoly to the public welfare. *I.; M., W., F.; 5; (3).* Professor KINLEY.

Required: Economics 1 or 2. [Not given in 1899-1900.]

19. ECONOMIC SEMINARY.—Advanced students will be formed

into a seminary for investigation and for the study of current economic literature. Students who write their theses in economics must do so in connection with the seminary work. *I. and II.; arrange time; (7 for the year).* Professor KINLEY and Dr. HAMMOND.

COURSES PRIMARILY FOR GRADUATES

(These courses are open to students who have had one full year's work in economics.)

101. The Theory of Value.—This is an historical and critical study of theories of value.

102. The History of Economic Thought.—In this course portions of the works of economic writers since the 16th century are read. Lectures are given tracing the course of economic thought in its relation to the prevalent philosophy.

ELECTRICAL ENGINEERING

1. ELECTRICAL ENGINEERING.—A course of lectures with laboratory practice, intended for students in mechanical and architectural engineering and for others who require only the elements of dynamo-electric machinery and an outline of the industrial applications of electric power. *II.; Lecture, Tu., F., 1, Laboratory; section A, Th., 6, 7, 8; section B, F., 6, 7, 8; (3).* Assistant Professor BROWNE.

Required: Physics 1, 3; Mathematics 9.

2. DYNAMO-ELECTRIC MACHINERY.—Lectures on the theory of dynamo-electric machinery, particularly continuous current machines; theory and use of instruments used in dynamo testing. This course is a continuation of Electrical Engineering 11, begun the second semester of the third year. *I.; M., W., F.; 6; (3).* Assistant Professor BROWNE.

Required: Physics 4; Electrical Engineering 11.

3. DYNAMO-ELECTRIC MACHINERY.—Laboratory practice. Experimental study of continuous current dynamos, motors, and accessory apparatus. Includes such complete tests as are made in the testing laboratories of our best manufactories. *I.; section A, M., Th., 3, 4, 5; section B, Tu., Th. 3, 4, 5; (2).* Assistant Professor BROWNE.

Required: Physics 4; Electrical Engineering 11.

4. DESIGN OF ELECTRO MAGNETS AND CONTINUOUS CURRENT MACHINERY.—Drafting with supplementary lectures on the design and construction of electro-magnetic mechanisms, and dynamo-electric machines. Each student calculates, designs, and makes detailed draw-

ings of typical examples of this apparatus. *I.; Lecture, Tu., Th., 6; Design, W., 3, 4, 5; (3).* Associate Professor ESTY.

Required: Physics 4; Electrical Engineering 11.

5. PHOTOMETRY.—Lectures and laboratory. A study of the principles of photometry, with candle power, life, and efficiency tests of arc and incandescent lamps. *I.; Lecture, S., 2; Laboratory, arrange 3 periods; (3).* Assistant Professor BROWNE.

Required: Physics 4.

6. TELEGRAPHY AND TELEPHONY.—Lectures and practice. This course includes methods of telegraphy, the theory of the telephone, and telephone engineering with special reference to the construction, testing and protection of lines. Visits to the local telephone exchanges are made, and reports on the systems required. *I.; first nine weeks; Lecture, M., W., F.; 2; (1½).* Associate Professor ESTY.

Required: Physics 4.

7. ELECTROLYSIS AND ELECTRO-METALLURGY.—Lectures and laboratory. The commercial applications of electrolysis in refining metals; treatment of sewage, etc.; electrotyping; electro-plating. A short course in electro-chemistry is included. Elective for year 1900-1901. *I,; arrange time; (2).* Assistant Professor BROWNE.

Required: Chemistry 1; Physics 4.

8. ELECTRIC WIRING AND DISTRIBUTION.—Lectures and practice. In this course are studied methods of electrical distribution for lighting and power, the design of circuits, interior wiring, fire insurance rules and regulations, methods of localizing faults in distributing mains with tests on the University electric distributing system. *I., last 9 weeks; M., W., F.; 2; (1½).* Associate Professor ESTY.

Required: Electrical Engineering 11; Physics 4.

9. ELECTRIC LIGHTING AND CENTRAL STATIONS.—Lectures and drafting. This course is a continuation of the preceding, and is supplementary thereto. It includes the design, operation, and economical management of central stations; the use of accumulators, compensators, and other regulators; plant testing; cost of producing electrical energy; consulting engineering. Plans, specifications, and estimates are made by each student for a complete plant. *II., first 7 weeks; Lecture, M., F., 1; Design, M., F., 2, 3, 4; (1½).* Associate Professor ESTY.

Required: Electrical Engineering 2, 3, 4, 5, and 8.

10. SEMINARY.—A weekly meeting of instructors and students is held in the department reading room for discussion of topics from the current journals of theoretical and applied electricity. Papers on

any original work being done in the department are read and discussed. A card catalogue of references to the leading electrical journals is maintained by the coöperation of members of the seminary with the department. *I. and II.; Tu.; 7 and 8; (1).* Associate Professor ESTY.

11. ELEMENTS OF DYNAMO-ELECTRIC MACHINERY.—A course of lectures introductory to the fuller courses of the fourth year. *II.; Tu., Th.; 6; (2).* Assistant Professor BROWNE.

Required: Physics 4 one semester.

12. ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY.—Lectures on the theory and application of alternating electric currents. *II.; M., W., F.; 6; (3).* Assistant Professor BROWNE.

Required: Electrical Engineering *2, 3.*

13. ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY.—Laboratory practice. Experimental study of alternating current instruments and apparatus, including single-phase and polyphase alternators, motors, and transformers. The University electric lighting plant is available for complete plant tests. *I.; section A, M., 7, 8, 9, and Th., 2, 3, 4; section B, Tu. and S., 2, 3, 4; (2).* Assistant Professor BROWNE.

Required: Electrical Engineering 2, 3.

14. DESIGN OF ALTERNATING CURRENT MACHINERY.—Lectures and drafting. Design and construction of alternators, motors, and transformers. Typical examples of this apparatus are studied and designed, and detailed drawings made. *II.; Lecture, Tu., Th., 6; Design, W., 2, 3, 4; (3).* Associate Professor ESTY.

Required: Electrical Engineering 2, 3, 4.

15. ELECTRICAL TRANSMISSION OF POWER.—Lectures and drafting. The design, equipment, and operation of electric railways and power stations; the utilization of water power and long distance transmission of electric power; the application of electric motors to general power distribution; consulting engineering. Visits to the plant of the local light and power company, and a detailed study of the University lighting and power plant form a part of the instruction, and full written reports of the installations are required. *II., last 11 weeks; Lecture, M., W., F., 1; Design, M., F., 2, 3, 4; (3).* Associate Professor ESTY.

Required: Electrical Engineering 2, 3, 8, 9.

COURSES FOR GRADUATES

Primary

101. Mathematical Theory of Electricity and Magnetism.
102. Absolute Measurements in Electricity and Magnetism.
103. Dynamo Electric Machinery.
104. Electrical Transmission of Power.
105. Electro-Metallurgy.
106. Photometry.
107. Electrical Design.
108. Economy of Production and Utilization of Electrical Energy.
109. Consulting Engineering.

Secondary

110. Mathematics.
111. Physics.
112. Language.
113. Chemistry.
114. Architectural Engineering.
115. Civil Engineering.
116. Municipal and Sanitary Engineering.
117. Mechanical Engineering.
118. Translation of Technical Engineering Works.
119. Calorimetry.

ENGLISH LANGUAGE AND LITERATURE

1. GENERAL SURVEY OF ENGLISH LITERATURE.—*I.; daily; section A, 2; section B, 4; section C, 7; (5).* Professor DODGE and Associate Professor JAYNE.

2. PROSE WRITERS OF THE EIGHTEENTH AND NINETEENTH CENTURIES.—*II.; daily; section A, 2; section B, 7; (5).* Professor DODGE and Associate Professor JAYNE.

Required: English 1.

3. NINETEENTH CENTURY POETRY.—*I. and II.; M., W., F.; 3; (3 each semester).* Associate Professor JAYNE.

Required: English 1.

4. PROSE WRITERS OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.—*I. and II.; Tu., Th.; 3; (2 each semester).* Professor DODGE.

Required: English 1 and 2. [Not given in 1899-1900.]

4a. Non-Dramatic Poetry of the Sixteenth and Seventeenth Centuries.—*I. and II.; Tu., Th.; 3; (2 each semester).* *Professor* Dodge.

Required: English 1 and 2.

5. Shakspere and History of the Drama.—Primarily for graduates. *I. and II.; M., W., F.; 2; (3 each semester).* Professor Dodge.

Required: English 1, 2 and either 3 or 4.

6. History of English Criticism.—Primarily for graduates. *I. and II.; Tu., Th.; 4; (2 each semester).* Professor Dodge.

Required: English 1, 2 and either 3 or 4.

7. Seminary: English Fiction.—Open only to senior and graduate student. *I. and II.; Tu.; arrange time; (1).* Associate Professor Jayne.

8. Old English (Anglo-Saxon) Grammar and Prose.—*I. and II.; M., W., F.; arrange time; (3 each semester).* Professor Dodge.

9. Early English.—*I. and II.; Tu., Th.; arrange time; (2 each semester).* Professor Dodge.

10. Old English Poetry.—*I. and II.; M., W., F.; arrange time; (3 each semester).* Professor Dodge.

Required: English 8 and 9.

11. Fourteenth and Fifteenth Century Literature.—*I. and II.; Tu., Th.; arrange time; (2 each semester).* Professor Dodge.

Required: English 8 and 9.

12. History of the English Language.—*I. and II.; W.; arrange time; (2 each semester).* Professor Dodge.

Required: English 8 and 9.

13. Icelandic.—*I. and II.; daily; arrange time; (5 each semester).* Professor Dodge.

Required: English 8 and 9, or German 1.

14. Old English Legal Codes.—Special course for students of politics, economics, and history. As an introduction to the course, Old English Grammar is studied, so far as is necessary for a proper understanding of early phraseology. Primarily for graduates, but open to undergraduates having sufficient preparation. *I. and II.; M., W.; arrange time; (2 each semester).* Professor Dodge.

Required: One year of history, economics, sociology, or English Literature.

15. Seminary: Methods of English Teaching.—Open to senior and graduate students. *I. and II.; W.; arrange time; (1 each semester.).* Professor Dodge and Associate Professor Jayne.

FRENCH

1. ELEMENTARY COURSE.—This course embraces grammatical study, pronunciation, exercises in composition, and conversation. Reading of representative works of modern authors, such as Daudet, Labiche, Jules Verne, and others. *I. and II.; daily; section A, 1; section B, 3; (5 each semester).* Assistant Professor PIATT.

2. NINETEENTH CENTURY.—(1) The class will read works of Mérimée, George Sand, Balzac, Sandeau, Bourget, Hugo, and others. (2) Outlines of French literature. (3) Assigned readings and reports thereon. *I. and II.; daily; 1; (5 each semester).* Assistant Professor FAIRFIELD.

Required: French 1 or 5.

3. SEVENTEENTH CENTURY.—(1) Readings from Molière, Corneille, Racine, Lafontaine, Boileau, de Sévigné, and others. (2) Study of French literature and civilization of the century. (3) Advanced composition. (4) Assigned reading. *I. and II.; daily; 6; (2 each semester).* Assistant Professor FAIRFIELD.

Required: French 2.

4. EIGHTEENTH CENTURY.—(1) The course will consist of lectures in French, themes, and collateral reading. Reading of selected works of Voltaire, Montesquieu, Rosseau, Chénier, and Beaumarchais. (2) Assigned readings. (3) Themes in French upon subjects connected with the course. *I. and II.; M., W., F.; 3; (5 each semester).* Assistant Professor FAIRFIELD.

Required: French 3.

5. SCIENTIFIC AND TECHNICAL FRENCH.—Similar to course 1 for first semester. In the second semester the class takes up the study of scientific and technical French. For this purpose a weekly scientific periodical, *La Nature,* published at Paris, is taken by each member, and made the basis of the class-room work. Particular attention is given to acquiring a technical vocabulary and to rapid reading. *I. and II.; daily; section A, 2; section B, 7; (5 each semester).* Assistant Professor PIATT.

COURSE FOR GRADUATES

101. OLD FRENCH READINGS.—Clédat, Les Auteurs Français du Moyen Age; Suchier, Aucassin et Nicolete; Gautier, La Chanson de Roland. Translation and comparison with the modern idiom. Study of the laws of phonetic changes. Lectures upon Old French philology. Assistant Professor FAIRFIELD.

GEOLOGY

1. Geology, Major Course.—(a) Dynamic Geology. The instruction given under this head is intended to familiarize the student with the forces now at work upon and within the earth's crust, modeling its reliefs, producing changes in the structure and composition of its rock masses and making deposits of minerals and ores. A series of localities is studied in which great surface changes have recently taken place, with a view to ascertaining the character of the forces producing such changes, and the physical evidence of the action of like forces in the past. The subject is taught by lectures, and is abundantly illustrated by maps, models, charts, and views.

(b) Petrographic. This course is a continuation of Mineralogy 16 (p. 228), and deals with fragmental rocks in substantially the same manner as that does with crystallines.

(c) Historical Geology. The work on this subject is substantially an introduction to the history of geology as a science. So far as may be done with the data in hand, an attempt is also made to trace the history of each geological period.

(d) Paleontology. The scheme of instruction in this subject places before the student the classification adopted for those organic forms occurring as fossils, together with the succession of the various groups that occur in the strata, with the cause, as far as known, for their appearance and disappearance. The student is required to familiarize himself with selected groups of paleozoic fossils, abundant illustrations of which are placed in his hands. The subject is presented in lectures and demonstrations, each group being considered in connection with its nearest living representative. *II.; daily; 1 and 2; (5).*

(e) Economic Geology. The final term of this course is devoted to a study of the uses man may make of geologic materials, the conditions under which these materials occur, and the qualities which render them valuable. The instruction is given by text and readings from the various state and government reports, transactions of societies, and monographs in which these subjects are treated, as well as by demonstrations with materials from the collections of the University. (14 weeks, 10 hours per week.)

In dynamic and historical geology Dana's manual is used as a reference book, and in economic geology Tarr's Economic Geology of the United States. Petrography is pursued by means of a laboratory guide adapted from Rosenbusch, Zirkel, Roth, Teall, and others.

In economic geology the manuals of Kemp and Tarr are used as texts. In paleontology Nicholson, Bernard, and Zittel are used for descriptions of the larger groups, Miller for general distribution, and the various state surveys for species. *I.; daily; 6 and 7; (5).* Professor Rolfe and Mr. Hubbard.

Required: Mineralogy 1.

2. Investigations and Thesis.—For students who select a geological thesis, guidance and facilities will be offered for individual investigations in the field and laboratory. *I. and II.; daily; 3 and 4; (5 each semester).* Professor Rolfe.

Required: Geology 1.

3. General Geology, Minor Course.—This course includes a selection of such geological facts and theories as should be known to every intelligent person, with such discussion of them as the time will permit. The subjects treated will be fully illustrated. One hour each day will be devoted to laboratory work, and this time will be about equally divided between the study of minerals, rocks, and fossils.

The instruction will be by texts and lectures, using Le Conte's Elements of Geology as the basis for the class-room work, and a specially prepared guide for the laboratory. *II.; daily; 6 and 7; (5).* Professor Rolfe and Mr. Hubbard.

Note.—Geology 1a, b, c. d may be taken, instead of the minor, by those who have had Mineralogy 1.

COURSES FOR GRADUATES

101. Paleontology.—A critical and comparative study of the fossils found in the rocks of Illinois.

102. Economic Geology.—The effects which variations in the chemical composition and physical constitution of inorganic substances used in the arts have on the qualities of the manufactured product, and should have on methods of manufacture. A critical examination of the tests now employed in determining the qualities of building stones.

103. Illinois Geology.—Glacial geology in relation to water supply of drift-covered regions. Dynamic and stratigraphic geology of the Ozark uplift in Illinois.

GERMAN

[For Courses A and B, see p. 272.]

1. Elementary Course.—Thomas's Practical German Grammar; Super's German Reader; Storm's Immensee with Hatfield's

Composition, based on Immensee, or other easy narrative prose. *I.; daily; section A, 1; section B, 2; section C, 3; section D, 4; section C, 7; (5).* Mr. MEYER and Dr. BROOKS.

2. ENGINEERING COURSE.—For students in the College of Engineering. General descriptive prose, followed by the translation of articles dealing with physics or the history of architecture. *II.; daily; 2; (5).* Dr. BROOKS.

Required: German 1.

3. NARRATIVE PROSE AND MODERN DIALOGUE.—For students in the College of Literature and Arts, and in the College of Science. Bernhardt's Novelletten Bibliothek; Freytag's Journalisten, or other works of a similar character. Harris's Prose Composition. *II.; daily; section A, 2; section B, 7; (5).* Mr. MEYER and Dr. BROOKS.

Required: German 1.

4. DESCRIPTIVE AND HISTORICAL PROSE.—Selections from standard prose writers of the present century, with grammatical review and drill; also exercises in reading at sight. *I.; daily; section A, 1; section B, 3; section C, 6; (5).* Professor RHOADES, Mr. MEYER, and Dr. BROOKS.

Required: German 1 and 3, or two years of high school work.

5. GERMAN CLASSICS.—One of Schiller's later dramas and one of Goethe's or Lessing's are translated with work in prose composition. *II.; daily; section A, 3; section B, 6; (5).* Professor RHOADES and Mr. MEYER.

Required: German 4.

6. SCIENTIFIC READING.—Required course for students in the College of Science and in the College of Engineering who offer two years of German for entrance. Works in physico-mathematical and in biological and chemical science are translated. *II.; daily; section A, 1; section B, 4; (5).* Dr. BROOKS.

Required: German 4.

7. LESSING OR SCHILLER, SELECTIONS.—The authors will be studied in alternate years; in 1899-1900, study of Lessing, designated as 7a; in 1900-1901, study of Schiller, designated as 7b. Students may, if they desire, elect and receive credits for both options. *I.; M., W., F.,; 7; (3).* Professor RHOADES.

Required: German 5 or 6, or three years of high school work.

8. SELECTIONS FROM LESSING OR SCHILLER.—The work is designed to supplement course 7, but with the approval of the instructor may be taken separately. The same arrangement will be followed

as in course 7, the work being designated as 8a and 8b. *I.; Tu., Th.; 7; (2).* Professor RHOADES.

Required: German 5.

9. GOETHE.—Translation and discussion of selected work. In 1899-1900, selections from his lyrics, prose works, and classical dramas, designated as 9a; in 1900-1901, study of Faust, designated as 9b. Students may elect and receive credit for both options. *I.; M., W., F.; 8; (3).* Professor RHOADES.

Required: German 7.

10. LECTURES ON GOETHE.—The work is designed to supplement and accompany course 9. *I.; Tu., Th.; 8; (2).* Professor RHOADES.

11. HISTORY OF GERMAN LITERATURE.—Lectures and assigned collateral reading. *II.; Tu., Th.; 7; (2).* Professor RHOADES.

Required: German 7.

12. HEYNE AND THE ROMANTIC POETS.—Translations and assigned readings. *II.; M., W., F.; 8; (3).* Professor RHOADES.

Required: German 5.

13. TEACHERS' SEMINARY.—Study of methods, text-books, and practical teaching. This course will be required in order to obtain a specific recommendation to teach German. *II.; Tu., Th.; 8; (2).* Professor RHOADES.

Required: German 7 and 12, also 11 unless taken in connection with this course.

GREEK

1. XENOPHON.—Lesser writings. Greek prose composition once a week. *I.; daily; 4; (5).* Professor MOSS.

2. HISTORICAL PROSE.—Selections from Herodotus, Thucydides, and Xenophon. Greek prose composition once a week. *II.; daily; 4; (5).* Professor MOSS.

Required: Greek 1.

3. PLATO.—The lesser dialogues. *I.; daily; 1; (5).* Professor MOSS.

Required: Greek 2.

4. GREEK TRAGEDY.—*II.; daily; 1; (5).* Professor MOSS.

Required: Greek 3.

5. HOMER.—The Odyssey. *I.; M., W., F.; 3; (3).* Professor MOSS.

Required: Greek 4.

6. HOMER.—The Odyssey. *II.; M., W., F.; 2; (3).* Professor MOSS.

Required: Greek 4.

7. Isocrates.—The Panegyricus. Demosthenes. The private orations. *I.; Tu., Th., 2; (2).* Professor Moss.

Required: Greek 4.

8. Lucian.—Select dialogues. *II.; Tu., Th.; 2; (2).* Professor Moss.

Required: Greek 4.

HISTORY

1. Mediæval and Modern European History.—Elementary, introductory course. *I. and II.; M., W., F.; 7; (3).* Professor Green and Mr. Schoolcraft.

2. Historical Introduction to Contemporary Politics.—The political history of the nineteenth century. The first semester is devoted to the political history of the United States, and the second to that of Europe. The work of either semester may be taken separately. This course, taken with Public Law and Administration 1, constitutes, during the first semester, a course in American history and government; and in the second semester a course in the governments and recent political history of Europe. *I. or II.; Tu., Th.; 7; (2 each semester).* Professor Greene.

3. American History.—The origin and growth of the nation from the beginning of English colonization in America to the close of the reconstruction period. *I. or II.; Tu., Th.; 1; (2 each semester).* Professor Greene.

Required: History 1 or 2; or, for juniors and seniors in the Colleges of Engineering, Science, and Agriculture, any course in economics or public law and administration.

4. English Constitutional History.—In this study of the growth of the English constitution, some attention is also given to the origins of legal institutions. The course is therefore adapted to the needs of students who expect to follow the profession of law. *I. and II.; M., W., F.; 3; (3 each semester).* Mr. Schoolcraft.

Required: History 1 or an equivalent.

5. The History of Greece.—This course and History 6 will be useful to students who expect to teach the classics or ancient history in secondary schools. *I.; M., W., F.; 1; (3).* Mr. Schoolcraft. [This course may be omitted in 1899-1900.]

6. The History of Rome.—The aim of this course, which furnishes a suitable introduction to History 1, is to give a general survey of the Roman world before the appearance of the Germans, rather than to trace the economic and political history of the city. *II.; M.,*

W., F.; 1; (3). Mr. SCHOOLCRAFT. [This course may be omitted in 1899-1900.]

7. THE REVOLUTIONARY ERA IN EUROPE, 1763-1815.—*I.; M., W., F.; 6; (3).* Professor GREENE.

Required: History 1.

8. THE COLONIAL INTERESTS AND COLONIAL POLICIES OF THE EUROPEAN POWERS.—Special attention will be given to the eighteenth and nineteenth centuries. *II.; M., W., F.; 6; (3).* Professor GREENE.

Required: History 1.

9. MEDIÆVAL HISTORY.—Advanced course. The conflict of the Papacy and the Empire. *I.; M., W., F.; 2; (3).* Mr. SCHOOLCRAFT.

Required: History 1.

10. ENGLAND UNDER THE STUART KINGS.—Puritanism and the Church of England. The conflict between king and parliament. *II.; M., W., F.; 2; (3).* Mr. SCHOOLCRAFT.

11. SEMINARY IN AMERICAN HISTORY.—Training in the use of the sources. Two hours a week throughout the year. Arrange hours. Professor GREENE.

Required: History 3.

12. SEMINARY IN ENGLISH HISTORY.—The general subject for the year 1899-1900 will be the Long Parliament. Two hours a week throughout the year. *Arrange hours.* Mr. SCHOOLCRAFT.

Required: History 1 and at least one other course in history.

COURSES FOR GRADUATES

101. AMERICAN HISTORY.—Special studies in the development of the West.

102. MEDIÆVAL HISTORY.—[See the announcement of courses in Law for the Seminary in Legal History, p. 152.]

HORTICULTURE

1. ORCHARDING AND GRAPE CULTURE.—Comprising a study of pomaceous fruits: apple, pear, quince. Drupaceous or stone fruits: plum, cherry, peach and nectarine, apricot. The grape.

Each fruit is studied with reference to the following: Botanical matter, history, importance and extent of cultivation, soil, location, propagation, planting, pruning and training, fertilizers, spraying, insect enemies and diseases, varieties, harvesting, storing and marketing, profits. *I.; M., W., F.; 2; (3).* Assistant Professor BLAIR.

2. PLANT PROPAGATION AND SMALL FRUITS.—(a) Methods of securing and perpetuating desirable varieties by self- and cross-fertilization, or by hybridization, and selection. Propagation of plants by seeds, cutting, layering, grafting, budding, etc.

(b) The strawberry, raspberry, blackberry, dewberry, currant, gooseberry, cranberry, and juneberry; each studied with reference to the points enumerated under 1, above. *II.; M., W., F.; 3 first half and 4 second half; (3).* Assistant Professor BLAIR.

Courses 1 and 2 are intended to give a general idea of horticultural work such as all students in the College of Agriculture should have, and at the same time to prepare those who wish it for more advanced work.

3. VEGETABLE GARDENING.—Kitchen and market gardening and vegetable forcing, embracing a study of all the commoner vegetables. *II.; M., W., F.; 6; (3).* Assistant Professor BLAIR.

4. FORESTRY.—This course embraces a study of forest trees and their natural uses, their distribution, and their artificial production. The relations of forest and climate are studied, and the general topics of forestry legislation and economy are discussed. *II.; Tu., Th.; 5; (2).* Professor BURRILL.

5. LANDSCAPE GARDENING.—Ornamental and Landscape gardening, with special reference to the beautifying of home surroundings. The subject is treated as a fine art, and is illustrated by the use of lantern slides and charts. *II.; M., W., F.; 1; (3).* Assistant Professor BLAIR.

6. ECONOMIC BOTANY.—See Botany 8 for description of this course.

7. SPECIAL INVESTIGATION AND THESIS WORK.—For graduates and advanced students. *I. and II.; arrange time; (10).* Professor BURRILL and Assistant Professor BLAIR.

COURSES FOR GRADUATES

101. Studies in combating fungous, insect, and other enemies of plants, including spraying materials and methods.

102. Studies in plant breeding, hybridization, and self- and cross-fertilization.

ITALIAN

1. GRAMMAR AND READING.—Grandgent's Italian Grammar, reading of modern authors; Dante's Divina Commedia, outlines of Italian literature. *I. and II.; M., W., F.; arrange time; (5).* Assistant Professor FAIRFIELD.

LATIN

1. Cicero and Pliny.—De Amicitia and De Senectute; composition based on the text; selections from Pliny's Letters. Roman life in Pliny's time. This course is required of students who offer but nine credits in Latin for admission. *I. and II.; daily; 2; (5 each semester).* Professor Barton.

2. Livy.—Selections from the XXI and XXII books. Latin composition based on the text. The main object of this course is to secure facility in composition and translation. *I.; daily; 1; (5).* Professor Barton.

3. Terence.—Phormio and selections from other plays. Scenic antiquities. Outlines of Roman literature. *II.; daily; 1; (5).* Professor Barton.

Required: Latin 2.

4. Horace and Catullus.—The odes of Horace and the lyrics of Catullus. Their art as a contribution to the world's best literature. *I.; daily; 6; (5).* Professor Barton.

Required: Latin 2, 3.

5. Horace and Tacitus.—The Satires and Epistles of Horace. Especial reference to the private life of the Romans in the time of Augusutus. The Germania of Tacitus in connection with Cæsar's account of the customs of the Germans. *I.; daily; 6; (5).* Professor Barton. This course will be given in alternate years with course 4. [Not given in 1899-1900.]

Required: Latin 2, 3.

6. Tacitus and Plautus.—The Agricola of Tacitus considered both from the standpoint of biography and as an introduction to the style of the author. Plautus, two plays. Comedy as an exponent of social life. Themes. *II.; daily; 6; (5).* Professor Barton.

Required: Latin 2, 3.

7. The Roman Historians.—Readings from Cæsar, Livy, Sallust, Tacitus, and Suetonius. The course is partly grammatical and partly devoted to a study of the differences of style and method of treating historical themes. *I.; daily; 6; (5).* Professor Barton. [Not given in 1899-1900.]

Required: Latin 2, 3.

8. Roman Satire and Epigram.—Selections from Juvenal, Persius, and Martial. Society in the first century. Themes. *I.; daily; 3; (5).* Professor Barton.

Required: Latin 2, 3.

9. TEACHERS' COURSE.—A study of the aims and essentials of preparatory Latin teachings, methods of presentation, and conditions which surround the study of Latin in the high schools of the state. Students will, for a portion of the time, do the work of a preparatory class, and at intervals take charge of the recitation. *II.; daily; 3; (5).* Professor BARTON.

LAW

1. CONTRACTS.—Text-books, *Anson on Contracts,* Huffcut's Edition, and *Huffcut and Woodruff's American Cases on Contracts.* Reference books, Anson, Harriman, Pollock, Parsons. *I.; Tu., W. Th., F.; 4; (4), and II., Tu., Th.; 4; (2).* Professor PICKETT.

2. TORTS.—Text-book, *Ames and Smith's Cases on Torts.* Reference books, Bigelow, Cooley, Pollock. *I.; M., Tu., Th., F.; 2; (4), and II., Tu., Th.; 2; (2).* Professor DREW.

3. REAL PROPERTY.—Text-books, *Tiedeman's Law of Real Property and Finch's Cases on Real Property.* Reference books, Williams (Hutchins's Edition), Washburn, Digby. *I. and II.; M., W., F.; 3; (3 each semester).* Assistant Professor HUGHES.

4. DOMESTIC RELATIONS.—Text-book, *Woodruff's Cases on the Domestic Relations.* Reference books, Schouler, Browne, Bishop (Marriage and Divorce). *II.; W., F.; 4; (2).*

5. CRIMINAL LAW.—Text-books, *Washburn's Criminal Law* and *Chaplin's Cases on Criminal Law.* Reference books, Bishop, Wharton, McClain. *II.; M., Th.; 1; (2).*

6. EVIDENCE.—Text-books, *Reynolds's Theory of Evidence* and *Thayer's Cases on Evidence.* Reference books, Greenleaf, Best, Stephens's Digest. *I.; W., F.; 4; (2), and II.; Tu., Th., F.; 2; (3).* Assistant Professor HUGHES.

7. SALES.—Text-book, *Burdick's Cases on the Law of Sales.* Reference books, Benjamin, Tiedeman. *I.; M., W., F.; 2; (3).* Professor PICKETT.

8. REAL PROPERTY.—Text-books and reference books as in Law 3. *I.; Tu., Th.; 4; (2).* Assistant Professor HUGHES.

9. COMMON LAW PLEADINGS.—Text-book, *Perry's Common Law Pleadings.* Reference books, Chitty, Gould. *I.; M., W.; 3; (2).* Professor DREW.

10. AGENCY.—Text-book, *Wambaugh's Cases on the Law of Agency.* Reference books, Mecham, Huffcut, Story. *II.; M., W., Th., F.; 4; (4).* Professor DREW.

11. DAMAGES.—Text-book, *Beale's Cases on Damages.* Refer-

ence book, Sedgwick's Elements. *I.; Tu., Th.; 3; (2).* Professor DREW.

12. BAILMENTS AND CARRIERS.—Text-book, *McClain's Cases on Carriers.* Reference books, Browne, Lawson, Hale, Schouler. *II.; M., F., W.; 3: (3).* Professor PICKETT.

13. GUARANTY AND SURETYSHIP.—Text-book, *Ames's Cases on Suretyship.* Reference book, Brandt. *II.; Tu.; 3; (1).* Professor PICKETT.

14. EQUITY.—*Ames's Cases on Trusts, and Bishpam's Principles of Equity.* Reference books, Story, Mitford, Spence. *I.; M., Tu., Th.; 3; (3).* Professor PICKETT.

15. CORPORATIONS.—Text-book, *Smith's Cases on Corporations.* Reference books, Cook, Morawetz. *I.; F.; 3; (1).* Professor DREW.

16. COMMERCIAL PAPER.—Text-book, *Huffcut's Negotiable Instruments.* Reference books, Daniel, Benjamin, Chalmers's Digest, Bigelow, Tiedeman, Norton. *I.; M., Tu., Th.; 2; (3).* Assistant Professor HUGHES.

17. WILLS.—Text-book, *Chaplin's Cases on Wills.* Reference books, Bigelow, Woerner, Jarman. *I.; M., W.; 4; (2).*

18. PARTNERSHIP.—Text-book, *Mecham's Law and Selected Cases on Partnership.* Reference books, Bates, Lindley, Parsons. *II.; Tu., Th.; 4; (2).* Assistant Professor HUGHES.

19. CONSTITUTIONAL LAW.—Text-book, *Boyd's Cases on Constitutional Law.* Reference books, Story, Cooley. *II.; Tu., Th., F.; 1; (3).* (Same as Public Law and Administration 6.) Assistant Professor TOOKE.

20. EQUITY PLEADINGS.—Text-book, *Mitford's Equity and Equity Pleadings.* Reference book, Story. *II.; M.; 4; (1).*

21. INTERNATIONAL LAW.—Text-book, *Snow's Cases on International Law.* Reference books, Wharton, Phillimore, Wheaton, Walker. *I.; W., F.; 1; (2).* (Same as Public Law and Administration 9.) Assistant Professor TOOKE.

COURSES FOR GRADUATES

Major Subjects

101. Law of Real Property.
102. Construction of Contracts.
103. Wills and Administration.
104. Commercial Law.
105. Law of Corporations, Private and Municipal.

Collateral Minor Subjects

101a. Law of Personal Property.
102a. Statutory Construction.
103a. Theory and Practice of Conveyancing.
104a. Guaranty and Suretyship.
105a. Railroad or Insurance Law.

General Minor Subjects

106. Public Law and Administration.
107. Statutory Law of Illinois.

LIBRARY SCIENCE

1. Elementary Library Economy.—Instruction begins with the selection of books and the placing of an order, and follows the regular library routine.

The work of the order department is taught by lectures and practice. American, English, French, and German trade bibliography is introduced. Instruction in the accession department is according to Dewey's Library School Rules. Lectures are given upon duplicates, exchanges, gifts, importing copyright, and allied topics.

The Dewey decimal classification is taught by classifying books. In the shelf department Dewey's Library School Rules is used and supplemented with lectures. Sample shelf-lists are made with both sheets and cards.

Cataloguing is taught according to Dewey's Library School Rules and Cutter's Rules for a Dictionary Catalogue. After each lecture students are required to catalogue independently a number of books. The class is taught to modify the rules to suit different types of libraries. Lectures are given on forms of card catalogues and mechanical accessories. Library handwriting is practiced in connection with all the work.

Instruction is given on loan systems and on binding and repair work. A comparative study of Chicago libraries is made in the second semester, when the students have become familiar with library methods.

Single lectures are given on library associations, library schools, library commissions, traveling libraries, home libraries, library economy publications, government and service, library legislation, regulations for readers, library architecture, libraries and schools, and

other general subjects, to acquaint students with current general library topics. *I.; daily; 2; (10); and II.; daily; 2; (4).* Professor Sharp and Miss Mann.

2. Elementary Reference.—Lectures are given on reference books considered in groups, such as indexes, dictionaries, encyclopædias, atlases, hand-books of history, hand-books of general information, quotations, statistics, etc. Reference lists are prepared for special classes and for literary societies, and the students have practical work in the reference department of the library. *I. and II.; Tu.; 1; (2 each semester).* Miss Straight.

3. Selection of Books.—Study is based upon the Publisher's Weekly. Each student checks desired books each week, examines them, if possible, and studies reviews in order to make a final choice of five or ten books each month. These books are carefully reviewed in class with regard to author, subject, edition, and series. Especially interesting publications, and current library topics, are called to the attention of the students at this time. This course continues through two years. *I. and II.; F.; 1; (1 each semester).* Miss Straight.

4. Elementary Apprentice Work.—A laboratory for the mechanical preparation of books for the shelves is fitted up in the stack-room, and here each student is given practical work each week. Each student acts as assistant to each member of the library staff in turn, thus learning many points which cannot be given in the class-room. *I.; daily; 3; (2); and II.; daily; 2; (8).* Miss Mann.

Required: Library 1, 2.

5. Advanced Library Economy.—In a comparative study of classification are discussed the systems of Dewey, Cutter, Edwards, Fletcher, Perkins, Smith, and Schwartz. A comparative study of cataloguing considers the rules of British Museum, Jewett, Library Association of the United Kingdom, Bodleian Library, American Library Association, Wheatly, Perkins, Cutter, and Dewey. Students revise junior cataloguing as a review, and catalogue new books for the library. Problems are given in buying supplies, in organizing and reorganizing libraries, in preparing printed finding-lists, in forming rules and regulations, and in devising loan systems. The class discusses questions affecting the founding and government of libraries, library legislation, library architecture, library administration, and current problems in public and college library work. *I. and II.; M., W.; 3; (3 each semester).* Professor Sharp and Miss Mann.

Required: Library 4.

6. Bibliography.—Lectures on subject bibliography are given by professors at the University. Students are given many practical problems. *I. and II.; Tu.; 3; (1 each semester).* Professor Sharp.

7. History of Libraries.—Libraries are studied by types and by countries. Special attention is given to libraries in the United States, their reports being used as text-books. *I.; W.; 1; (2).* Miss Straight.

8. Advanced Reference.—The course takes up public documents, transactions of societies, advanced reference books, and indexing. *I.; Th.; 1; (2); and II., first half; Th.; 1; (2).* Miss Straight.

Required: Library 1, 2.

9. Book-Making.—Lectures on the history of printing, printers' marks, book-plates, and the history and art of binding. *II., second half; W.; 1; (2).* Miss Straight.

10. Advanced Apprentice Work.—Students are allowed a certain time each day for practical library work of an advanced grade, and gain experience in every department of the library. They have charge of the Urbana public library every afternoon. *I. and II.; daily; 6; (5 each semester).* Miss Mann.

Required: Library 4.

11. Thesis.—Each student is required to present a thesis for graduation. This must be on some library topic, and must represent original research. An original bibliography, instead of a thesis, may be presented upon the approval of the director. *I.; arrange time; (1); and II.; arrange time; (3).* Professor Sharp.

Required: Library 1-10.

12. General Reference.—This course is offered to all students of the University who wish to become familiar with the ordinary reference books. It will comprise twelve lectures on the catalogue, classification, the reference-room, the reading-room, and groups of books, such as indexes, dictionaries, encyclopædias, atlases, handbooks of general information, handbooks of history, statistics, quotations, etc. *I.; arrange time; (1).* Professor Sharp.

MATHEMATICS

1. Advanced Algebra.—For students in courses requiring spherical trigonometry. This course presupposes a thorough knowledge of elementary algebra through simultaneous quadratics and proportion. Students, who for any reason have not had this elementary work recently, would find it to their advantage to review it thoroughly before commencing this course. The work will cover

the following topics: Progressions, indeterminate equations, binomial theorems for fractional and negative exponents, undetermined coefficients, decompositions of fractions, theory of limits, convergency and divergency of series, reversion of series, summation of series, logarithms, continued fractions, permutations and combinations, probability, and the loci of equations. *I.; Tu., Th.; section A, 2; section B, 4; (2).* Mr. COAR.

2. ADVANCED ALGEBRA.—For students in courses not requiring spherical trigonometry, to be taken with course 4. This course will cover all the work given in course 1, and in addition will include a short introduction to the general theory of equations, with applications to the solution of numerical equations. *I.; M., W., F.; section A, 1; section B, 2; section C, 3; section D, 4; section E, 6; (3).* Mr. BRENKE, Mr. MILNE, and Mr. COAR.

3. PLANE AND SPHERICAL TRIGONOMETRY.—This course covers the same ground in plane trigonometry as course 4. In addition to the work outlined there, about two-fifths of the term will be given to developing the general principles and applications of spherical trigonometry. *I.; M., W., F.; section A, 2; section B, 4; (3).* Mr. COAR.

Required: Solid and Spherical Geometry.

4. PLANE TRIGONOMETRY.—The following topics will be taken up, viz.: Measurement of angles, trigonometric functions and their fundamental relations, functions of the sum and the difference of two angles, functions of twice an angle and of half an angle, the construction and use of logarithmic tables, solution of trigonometric equations, the relations between the sides of a triangle and the functions of its angles, the solution of triangles, Demoiyre's theorem and trigonometric series. It is intended that this course shall be taken with course 2 in advanced algebra. *I.; Tu., Th.; section A, 1; section B, 2; section C, 3; section D, 4; section E, 6; (2).* Mr. BRENKE, Mr. MILNE, and Mr. COAR.

6. ANALYTICAL GEOMETRY.—The aim is to acquaint the student with analytical methods of investigation and to familiarize him with some of the most recent developments in synthetic geometry; to make him more skillful in the use of algebraic processes, especially as a means of demonstrating geometric properties of loci. Subjects considered are the elementary theory of the point and right line in a plane; use of abbreviated notation; elementary theory of the conic sections, their equations and properties developed analytically; poles and polars; synthetic geometry of the circle, and the discussion of the general equation of the second degree, and of some higher plane

curves. The course will also include a discussion of the following subjects: Coördinate systems for a point in space, the locus in space of an equation of the first and second degree, planes and straight lines, quadratic surfaces. *Tanner and Allen's Analytic Geometry. II.; daily; section A, 1; section B, 3; section C, 6; (5).* Mr. BRENKE, Mr MILNE and Mr. COAR.

Required: Mathematics 2, 4 or 1, 3.

7. DIFFERENTIAL CALCULUS.—Variables and functions; limits and infinitesimals; differentials and derivatives; differentiation of explicit functions, implicit functions, and functions of several variables; derivatives of higher orders; successive derivatives, developments in series; maxima and minima of functions; indeterminate forms; plane curves, tangents, and normals; asymptotes, singular points, and curve tracing; theory of envelopes, of curvature, of evolutes, and of involutes. *Byerly's Differential Calculus. I.; daily; section A, 1; section B, 2; (5).* Professor SHATTUCK.

Required: Mathematics 6.

9. INTEGRAL CALCULUS.—Elementary forms of integrations; integrals immediately reducible to the elementary forms; integration by rational transformations; integration of irrational algebraic differentials; integration of transcendent functions; definite integrals; successive integration; differentiation under the sign of integration; integration by means of differentiating known integrals; double integrals; triple and multiple integrals; product of two definite integrals.

Rectification and quadrature; the parabola, the ellipse, the cycloid, the Archimedean spiral, the logarithmic spiral, the limniscate, the cycloid, quadrature of surfaces of revolution and of surfaces in general; cubature of volumes; the sphere, the pyramid, the ellipsoid, any solid of revolution, and of volumes in general. *Byerly's Integral Calculus. II.; daily; section A, 1; section B, 2; (5).* Professor SHATTUCK.

Required: Mathematics 7.

10. THEORY OF EQUATIONS.—The development of the general properties of equations; relations of the roots and the coefficients of an equation, with applications to symmetric functions; transformation of equations; solution of reciprocal and binomial equations; algebraic solution of cubics and biquadratics; properties of derived functions; the limits and separation of the roots of equations; the solution of numerical equations of the nth degree. *Burnside and Panton's Theory of Equations. I.; M., W., F.; 1; (3).* Mr. COAR.

Required: Mathematics 2, 4 or 1, 3.

11. Theory of Determinants.—The origin and notation of determinants, properties of determinants, determinant minors, multiplication of determinants, determinants of compound systems, determinants of special forms—Jacobians, Hessians, Wronskians—with applications to algebra, including linear transformations, and to analytic geometry. *Hanus's Theory of Determinants,* supplemented by lectures. *I.; Tu., Th.; 1; (2).* Mr. Coar.

Required: Mathematics 7, 10.

12. Theory of Invariants.—The course will cover the general development of the theory of invariants, both from the geometric and from the algebraic side. Applications of invariants will be made to systems of conics and to higher plane curves. Lectures with collateral reading. Mr. Coar.

Required: Mathematics 11. [Not given in 1899-1900.].

13. Theory of Functions.—By way of introduction, considerable attention will be given to the geometric representation of the complex variable, including Argand's diagram, conformal representation, and harmonic ratios, and bilinear transformation. This will be followed by the development of the theory of infinite series, algebraic and transcendental functions, integration of uniform functions, Riemann's surfaces, introduction to elliptic functions, etc. *Durege's Theory of Functions and Collateral Reading. I. and II.; M., W., F.; 3; (3).* Mr. Coar.

Required: Mathematics 7, 9, 10.

14. Method of Least Squares.—The object of this course is to present the fundamental principles of the subject, in a manner, so plain as to render them intelligible and useful to students of astronomy and engineering. The following subjects will be studied: Law of probability and error, adjustment of observations, precision of observations, independent and conditioned observations, etc. *Merriman's Least Squares. I.; M., W., F.; 4; (1½).* Mr. Brenke.

Required: Mathematics 9.

15. Seminary and Thesis.—*I. and II.; Tu., Th.; 3; (2).* Associate Professor Townsend.

16. Differential Equations.—This subject is designed for students in the courses of engineering and of mathematics and astronomy. It will embrace the following topics: General linear equations with constant coefficients, special forms of differential equations of higher order, integration of series, etc. *Johnson's Differential Equations. II.; M., W., F.; 4; (3).* Mr. Brenke.

Required: Mathematics 9.

17. ANALYTICAL GEOMETRY OF SPACE.—A general review will be given of the position of the plane and the right line in space and the more general properties of surfaces of the second degree. To this will be added the classification and special properties of quadrics, and a brief introduction to the theory of surfaces in general. *Chas. Smith's Solid Geometry. II.; M., W., F.; 1; (3).* Mr. COAR.

Required: Mathematics 9.

18. HIGHER PLANE CURVES.—This course is designed to cover the general theory of algebraic curves, together with the application of the theory of invariants to higher plane curves. Special study will be made of curves of the third and fourth order. *Lectures with collateral reading.*

Required: Mathematics 12. [Not given in 1899-1900.]

20. CALCULUS OF VARIATIONS.—This course has for its aim merely to acquaint the student with those elements of the science which are most needed in the study of the higher subjects of mathematical astronomy and physics. *Carll's Calculus of Variations. I.; M., W., F.; 4; (1½).* Professor MYERS.

Required: Mathematics 11, 16.

21. SPHERICAL HARMONICS.—In this course, a thorough study is made of so much of this subject as is of interest to an astronomer. It is introduced by a short course of lectures and study of certain trigonometric series. Fourier's Theorem for developing any function of a variable in a series proceeding in sines and cosines of multiples of the variable is derived and the limitations of its validity investigated. This is followed by the study of Lagrange's, Laplace's and Lamé's functions and their applications to astronomical and physical problems. *Byerly's Fourier's Series and Spherical Harmonics. I.; M., W., F.; 7; (3).* Professor MYERS.

Required: Mathematics 11, 14, 16.

22. POTENTIAL FUNCTION.—The potential function is defined and its properties derived and discussed. The potential of various bodies; such as of a wire, a spherical shell, a sphere, elipsoid of revolution, etc., is computed. Poisson's and Laplace's Equations are derived and discussed. Green's Propositions with kindred and similar subjects are handled. *Pierce's Newtonian Potential Function. II.; M., W., F.; 7; (3).* Professor MYERS.

Required: Mathematics 21; Astronomy 6.

23. MODERN GEOMETRY.—This course will include in general a consideration of homogeneous coördinates, duality, descriptive and metrical properties of curves, anharmonic ratios, homography, involu-

tion, projection theory of correspondence, etc. *Scott's Modern Analytic Geometry.* Associate Professor TOWNSEND.

Required: Mathematics 8, 11. [Not given in 1899-1900.]

24. ALGEBRAIC SURFACES.—In this course will be considered the application of homogeneous coördinates and the theory of invariants to geometry of three dimensions, and also the general theory of surfaces, together with the special properties of surfaces of the third and fourth order. *Lectures with collateral reading.* Associate Professor TOWNSEND.

Required: Mathematics 17, 18. [Not given in 1899-1900.]

MECHANICAL ENGINEERING

1. SHOP PRACTICE.—In the shops the work, as far as possible, is carried along the same lines as are practiced in our leading commercial shops. The exercises are, in general, chosen from parts of machines under construction, and carefully graded to the skill of the student. Beginning with the care and use of the tools with which he is to work, the student is carried through the various operations of machine-shop practice. Following is an outline of the work, that of the two semesters being subject to transposition.

First Semester, Wood Shop.—Primary exercises relating to the care and use of tools and the construction of a series of exercises in joint work and turning preparatory to pattern making.

Pattern and core box making with special reference to molding.

Second Semester, Foundry and Forge Shop.—One-half of this semester is devoted to instruction in the management of the cupola and molding, including the making of green and dry sand cores. One-half of the semester is devoted to instruction in forging and welding iron and steel. Special attention is given to tempering of lathe and planer tools, also to case-hardening and annealing. *I. and II; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (3½).* Mr. CURTISS, Mr. WILSON, and Mr. JONES.

2. SHOP PRACTICE.—First Semester. Instruction in chipping, filing, and elementary machine work. Lectures.

Second Semester.—Instruction in the various operations of lathe, planer, drill press, shaper, grinding machine, milling machine, boring mill, as well as fitting and bench work. Lectures. *I. and II.; daily; 6, 7, and 8 (divides time with M. E. 4); (2½).* Assistant Professor VANDERVOORT and Mr. CLARK.

3. POWER MEASUREMENTS.—This is the beginning of the work in the mechanical engineering laboratory, and is intended for students

taking the mechanical engineering course. A study is made of the use and construction of the steam engine indicator. The measurement of power developed by the steam engine under different conditions is made a prominent part of the work. The method of applying friction brakes and measuring transmitted power is also taken up. *I. and II.; Tu., Th., 6, 7, and 8; S., 1, 2, 3; (2).* Mr. OLIVER.

Required: Mechanical Engineering 1, 2; Math. 9.

4. ELEMENTS OF MACHINE DESIGN.—The basis of this work is found in *Klein's Elements of Machine Design.* A series of plates 26x40 inches is constructed, covering a wide range of machine parts. There are 334 formulas, empirical and rational, the use and derivation of which are explained. By means of a large number of practical examples, sufficient drill is obtained in using them to enable the student to make the calculations required when designing various parts of machines. Theoretical and practical problems relating to gearing are taken up and worked out in detail. Instruction in blue printing and duplicating is included in the course. For description see Chem. 22c, p. 188. *Kent's Mechanical Engineer's Pocket-book; Low and Bevis' Machine Design; also Unwin's Machine Design. I. and II.; daily; 6, 7, and 8 (divides time with M.E. 2); (2½).* Mr. SCHMIDT.

Required: General Engineering Drawing 1, 2.

5. MECHANISM.—A study of nature and equivalence of mechanisms. Determination of centrodes. Graphical diagrams of the paths, speeds, and accelerations of important points of familiar mechanisms. Laying out of cams. Analysis of difficult mechanisms. Determination of velocity ratios. Particular attention is paid to problems relating to motions of gearing, steam-engine mechanisms, parallel motions of indicators, governors, link motions, valve gears, and indicator riggings. *I.; M., W., F.; 3 and 4; (3).* Mr. SCHMIDT.

6. HEAT ENGINES.—The application of the theory of thermodynamics to gas and gasoline engines and hot air engines. A study of the modern forms of heat engines. Lectures and assigned readings. *I.; Tu., Th.; 1; (2).* Professor BRECKENRIDGE.

Required: Theoretical and Applied Mechanics 1; Mathematics 9; Physics 1, 3; Mechanical Engineering 7.

7. THERMODYNAMICS.—The fundamental principles underlying the transformation of heat into work, more especially as exemplified in the steam engine, are carefully studied. Considerable attention is paid to the solution of numerous examples, such as will arise in steam, air, or gas engineering. Drill is given in the rapid and

accurate use of standard steam tables. *I.; M., W., F.; 1; (3).* Professor BRECKENRIDGE.

Required: Math. 9; Theoretical and Applied Mechanics 1; Physics 1, 3.

8. MECHANICS OF MACHINERY.—This is a study of the theoretical principles involved in the construction of such machinery as comes under the head of hoisting apparatus, pumping engines, air compressors, fans, blowers, machinery for transmitting power, locomotives, pile drivers. *II.; Tu., W., Th.; 1; (3).* Professor BRECKENRIDGE.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 5, 7, 14, 15.

9. ADVANCED DESIGNING.—This work follows the design of a high-speed steam engine, and comes under two heads.

Advanced Design: Under this head the work begins with simple machines and extends to more difficult designs as the student progresses. The design of attachments to existing machines, or the complete design of some machine that can be built in the shops, is often a part of this work. Such designs as hoists, pumps, drills, lathes, etc., are undertaken.

Original Design: In this work the student's previous training in designing is combined with his inventive ability, and often valuable and ingenious work is done. The machines are to be designed for accomplishing a certain prescribed work. Often but a single piece is handed the student, and a machine is required which will produce a given number of these pieces per hour.

A large amount of study of existing machines is required. The student is taught to consult the standard works on designing, such as *Unwin, Reuleaux, Klein, Marks, Richards,* and to use such books as *Kent, Nystrom, Haswell, Taschenbuch der Hutte,* etc. *I.; Tu., Th.; 6, 7, 8; (2); II.; Tu., W., Th.; 6, 7, 8; (3).* Assistant Professor VANDERVOORT and Professor BRECKENRIDGE.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 8, and 14.

10. ESTIMATES, SPECIFICATIONS, AND SUPERINTENDENCE.—Calculations and estimates are made as to the cost of machinery, power plants, boilers, chimneys, systems of piping, engines and their foundations, different methods of power transmission.

Also forms of contracts and specifications are studied. *II.; Tu., Th.; 2, 3, 4; (2).* Professor VANDERVOORT.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 6, 9, 12.

12. Advanced Mechanical Engineering Laboratory.—This work is a continuation of the work begun in the junior year. Experiments are made with engines, pumps, motors, injectors, and boilers to determine under what conditions they may be expected to give a maximum effiiciency. Tests of plants in the vicinity are made, of which carefully prepared reports are always required. Through the kindness of Mr. W. Renshaw, Superintendent of Machinery of the Illinois Central Railroad, opportunities will be afforded to do practical work in locomotive testing, and considerable apparatus has been constructed for this important work. A dynamometer car is now owned and operated by the department and the P. & E. Div. of the "Big Four" Ry., which furnishes unexcelled opportunities for experimental railway engineering. Advanced constructive work in the shops is assigned to groups of students, in order to impress upon them the intimate relation existing between the designing room and the shop. *Carpenter's Experimental Engineering. I.; M., F.; arrange time; ; (4); II.; M., F.; 1; (2).* Professor Breckenridge, Assistant Professor VanDervoort, and Mr. Oliver.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 7, 14, 15.

13. Mechanical Engineering Laboratory.—This is a laboratory course in which the student is taught to apply the indicator to different engines and to make the usual calculations of horse power and steam consumption as given by the diagrams. Correct forms of reducing motions are explained. How to read indicator diagrams and valve setting is also taught. *Indicator Practice and Steam Engine Economy—F. F. Hemenway. II.; Th., F.: 6, 7, 8; (2).* Mr. Oliver.

Required: Mechanical Engineering 1, 2; Math. 7, 8, 9.

14. High Speed Steam Engine and Valve Gears.—Under this head the steam engine is carefully studied. Each part of a complete engine is designed, and detailed drawings made and traced, so that each member of the class may have a complete set of blue prints.

The application of graphical diagrams as an aid in the study and design of valves for steam distribution in the engine cylinder is carefully brought out. Determination of the dimensions of steam passages, single valve gears, double valve gears, equalization of steam distribution, application of diagrams to existing types of engines. *Klein's High Speed Steam Engine. I.; Tu., W., Th.; 2, 3, 4; (3).* Assistant Professor VanDervoort.

Required: Mechanical Engineering 1 to 7, 16, 17; Theoretical and Applied Mechanics 1, 2.

16. Steam Engines.—A study of the details of steam engines. Elementary principles of transformation of heat into work. Laws of expansion of steam. The mechanics of the steam engine. Valves and valve gears. The indicator diagram, condensers, steam jackets, super-heaters, and compound engines. *The Steam Engine, Holmes. I.; Tu., Th.; section A, 1; section B, 2; (2).* Assistant Professor VanDervoort.

Required: Theoretical and Applied Mechanics 1; Physics 1, 3.

17. Steam Boilers.—Materials used in the construction of boilers. Proportions and strength of riveted joints. Methods of setting boilers for maximum efficiency. Incrustation, explosions, combustion, safety appliances, feed apparatus, boiler trials. *Peabody and Miller's Steam Boilers. II.; M.; section A, 1; section B, 2; (1).* Mr. Schmidt.

Required: Mechanical Engineering 1; Physics 1, 3; Mathematics 2, 4, 6.

18. Graphical Statics of Mechanism.—Graphical determination of the forces acting at different points in machines used for hoisting, crushing, punching, and transmitting motion, taking into account the resistances offered to motion by frictional resistances. Effort of sliding, rolling, and journal friction, chain friction, tooth friction, stiffness of ropes and belts. Graphical determination of the efficiency for the forward and reverse motion. *Graphical Statics of Mechanism, Herrmann-Smith. II.; W.; 2, 3, 4; (1).* Mr. Schmidt.

Required: Theoretical and Applied Mechanics 1, 2.

19. Seminary.—Work supplementary to other studies of the senior year. Presentation of papers on assigned subjects. Contributed papers on current topics. Discussion and criticisms on new inventions. *I.; W.; 6 and 7; II.; M.; 6 and 7; (1).* Professor Breckenridge.

20. Shop Practice for Special Students.—This course is open to those entering as special students, as defined elsewhere under "Admission." The work will be arranged after consultation. The work done does not count for a credit for graduation in any of the technical courses. *Arrange time.* Assistant Professor VanDervoort.

21. Forge Shop Practice.—This course is designed for students taking the winter course in Agriculture. The work covers instruction in forging, such as will be of use to the practical farmer. *Arrange time.* Mr. Jones.

COURSES FOR GRADUATES

Primary

101. Advanced Machine Design.
102. Graphics and Kinematics.
103. Mill Engineering.
104. Steam Engineering.
105. Experimental Engineering.
106. Thermodynamics.
107. Pneumatics.
108. Hydraulic Machinery.
109. Mechanical Technology.
110. Translation of Technical Engineering Work.
111. Heat Engines and Gas Engineering.
112. Locomotive Engineering.
113. Mechanical Refrigeration.

Secondary

120. Any primary offered in the College of Engineering. Primary subjects may be taken as secondary in any course for the master's degree in the College of Engineering.

121. Indexing and Classification of Engineering Literature.

MECHANICS, THEORETICAL AND APPLIED

1. Analytical Mechanics.—The mechanics of engineering, rather than that of astronomy and physics, is here considered. In addition to fixing the fundamental concepts and demonstrating the general principles of equilibrium and motion, application of principles and methods is made to numerous and varied engineering problems in such a way that the student must discriminate in the use of data and in the statement of conditions. As mathematical processes and forms express most readily and quickly the rules and methods for the solution of such problems, such training is given with special care. This subject requires a thorough working knowledge of the mathematics preceding it in the course. The methods of the calculus are used whenever preferable.

Outline of the subject: Nature and measure of force; composition and resolution of forces; moments; conditions of equilibrium; resultant of systems of forces; center of gravity; moment of inertia; rectilinear and curvilinear motion, and the relation between such motion and the constraining and accelerating forces; dynamics of a rigid body; momentum and impact; work, energy, and power;

mechanical advantage. *Bowser's Analytical Mechanics. I., first 14 weeks; daily; section A, 1; section B, 2; (5).* Professor TALBOT.

Required: Mathematics 9.

2a, b. RESISTANCE OF MATERIALS.—In the treatment of this subject it is the aim to give the student a thorough training in the elementary principles of the mechanics of materials, to follow with such experiments and investigations in the materials laboratory as tend to verify the experimental laws, and to add such problems in ordinary engineering practice as will train the student in the use of his knowledge. Attention is also given to the quality and requirements for structural materials.

Outline of the subject: Elasticity of materials; stresses and strains; experimental laws; working strength for different materials; resistance of pipes and riveted joints; bending and resisting moment, shear, and elastic curve of cantilever, simple, restrained, and continuous beams; column formulas; torsion and shafts; maximum internal stresses in beams; fatigue of metals; working strength for repeated stresses; resilience; reliability of the common theory of flexure, as shown by actual experiment; design and strength of rolled and built beams and columns; specifications for materials and methods of testing. *Merriman's Mechanics of Materials. I., last four weeks; daily; section A, 1; section B, 2. II., first 7 weeks; Tu., W., Th., F.; section A, 1; section B, 2; arrange for one laboratory period of two hours each week; (5).* Professor TALBOT.

Required: Math. 9; Theoretical and Applied Mechanics 1.

3. HYDRAULICS.—In hydraulics the instruction is by text-book and laboratory work. The laws of the pressure and the flow of water and its utilization as motive power are considered. Experimental work in the hydraulic laboratory gives training in the observation and measurement of pressure, velocity, and flow, and in the determination of experimental coefficients.

The subject covers the following: Weight and pressure of water; head; center of pressure; velocity and discharge through orifices, weirs, tubes, nozzles, pipes, conduits, canals, and rivers; measurement of pressure velocity, and discharge; meters and measurements; motors, turbines, and water wheels; water power and transmission of power. *Merriman's Hydraulics. II., last 11 weeks; Tu., W., Th., F.; section A, 1; section B, 2; arrange for one laboratory period of three hours each week; (5).* Professor TALBOT.

Required: Mathematics 9; Theoretical and Applied Mechanics 2.

4. APPLIED MECHANICS.—To be taken instead of Analytical

Mechanics. The course of study and topics studied will be nearly identical. *Wright's Mechanics. I.; M., Tu., W., F.; 2; (3).* Assistant Professor McLane.

Required: Mathematics 6.

5. Strength of Materials.—To be taken instead of Resistance of Materials. The course of study will be nearly the same, though somewhat simplified. *Merriman's Mechanics of Materials. II.; Tu., F., 1; M., W., 6; arrange for ten laboratory periods of two hours each; (4).* Assistant Professor McLane.

Required: Mathematics 6; Theoretical and Applied Mechanics 4.

COURSES FOR GRADUATES

101. Analytical Mechanics.
102. Resistance of Materials.
103. Hydraulics and Hydraulic Engineering.
104. Laboratory of Applied Mechanics.

MILITARY SCIENCE

1. Drill Regulations.—For all male students. First term: school of soldier; bayonet exercise; second term: school of company, close and extended order. *I.; (1).* Professor ——

2. Practical Instruction in School of Soldier.—Company and battalion in close and extended order; school of the cannoneer and of the battery dismounted; target practice. Freshmen and sophomore years. *I. and II.; (1 each semester).* Professor ——

3. Recitations and Practice for Officers and Non-Commissioned Officers.—*Sophomore year:* School of the battalion close and extended order; ceremonies; review and inspection; military signaling; guard, outpost, and picket duty. *Junior year:* military administration; reports and returns; theory of firearms and target practice; organization of armies; field fortifications; art of war. This course is obligatory upon officers and non-commissioned officers, and open to others. Five semesters, recitations one to two hours a week; drill two hours a week. Professor ——

MINERALOGY

1. Elements of Mineralogy.—(a) The first term's work is a general introduction to the subject. Instruction includes lectures and laboratory practice. In the lectures, which occur on specified days (2 or 3 each week), such subjects as follow are discussed: Genesis of minerals; conditions favoring their deposition; origin of the massive and crystalline forms; relationships of minerals and their classi-

fication; the physical properties of minerals, as color, luster, hardness, gravity, streak, etc., with the conditions which may cause these properties to vary; elements of crystallography.

In the laboratory the student is first made acquainted with the simplest trustworthy methods for proving the presence or absence of the acids and bases. He is then required to determine a large number of species by their physical and chemical properties only.

(b) Petrography of Crystalline Rocks: The instruction under this topic is given by lectures and laboratory work. The subjects included are the classification of rocks, the methods used in their determination, the conditions governing the formation of each species, the decompositions to which they are liable, and the products of these decompositions. Each student is supplied with a set of blowpipe tools and reagents, and a series of hand specimens covering all the common species of rocks. The course is continued under Geology 1b. *I.; daily; 1 and 2; (5).* Professor ROLFE and Mr. HUBBARD.

Required: Chemistry 1.

2. ADVANCED MINERALOGY.—(a) Crystallographic Mineralogy. During the second semester a careful study of the forms of crystals is made, including the measurement of angles and determination of complex forms. The student is also required to identify many species of minerals by their crystalline forms, and to verify his conclusions by the methods in use during the preceding term.

(b) Optical Mineralogy. The work of the semester will be devoted to the microscopic determination of rock forming minerals; to methods for separating the minerals constituents of fine-grained rocks, etc. *II.; daily; 3 and 4; (5).* Professor ROLFE and Mr. HUBBARD.

Required: Mineralogy 1.

MUNICIPAL AND SANITARY ENGINEERING

1. ROAD ENGINEERING.—The value and importance of road improvement in country highways and the best means of securing it are considered, together with the principles and details of construction of earth, gravel, and macadam roads. In city streets, the methods of construction, cost, durability, and desirability of the various kinds of pavement, and the questions of grades, cross-sections, methods of assessment of cost, and methods of maintenance and cleaning are treated. *Byrne's Highway Construction. Lectures and Reading. II.; Th. or F.; 3; (1).* Mr.——.

Required: Math. 4; General Engineering Drawing 1, 2; Civil Engineering 1, 2, 3, 4.

2. Water Supply Engineering.—This subject is intended to cover the principal features of the construction of water works, including the tests and standards of purity of potable water; the choice of source of supply; the designing of the distribution system, pumps and pumping machinery, reservoirs, and stand-pipes. *Lectures; Fanning's Water Supply Engineering. I.; M., Tu., W., Th.; 4; arrange for drafting, 12 periods, M., 6, 7, and 8; (4).* Professor Talbot.

Required: Theoretical and Applied Mechanics 1, 3; Chemistry 1; Mechanical Engineering 16.

3. Sewerage.—The design and methods of construction of sewerage systems of cities, including the following: Sanitary necessity of sewerage; water carriage systems, both separate and combined; surveys and general plans; hydraulics of sewers; relation of rainfall to storm water flow, and determination of size and capacity of sewers; house sewage and its removal; form, size, design, and construction of sewers and sewer appurtenances; modern methods of sewage disposal; estimates and specifications. *Lectures; Folwell's Sewerage. II.; M., Tu., W.; 4; arrange for drafting, 10 periods, M., 6, 7, and 8; (3).* Professor Talbot.

Required: Theoretical and Applied Mechanics 1, 3; Chemistry 1.

5a. Bacteriology.—For students in Municipal Engineering. This course includes the identification and classification of bacteria, and of allied organisms, their relations to health and to disease, the methods of separation and cultivation, and the methods of air and water analysis. The laboratory is furnished with sterilizers, culture ovens, microscopes, etc., and students have abundant opportunity to do practical work. This course follows civil engineering 4a. *I., last 7 weeks; daily; 6 and 7; (2).* Professor Burrill.

6. Water Purification, Sewage Disposal, and General Sanitation.—This work includes the consideration of impurities in water supplies and the study of the methods and processes of their removal; the modern methods of sewage disposal by filtration, chemical precipitation, irrigation, etc., with a study of representative purification plants; garbage collection and disposal; sanitary restrictions and regulations and general sanitation. Lectures and seminary work. *II.; W., Th., F., 3, M., Tu., 6; (5).* Professor Talbot.

Required: Municipal and Sanitary Engineering 2, 3, 5a; Chemistry 1, 3a.

COURSES FOR GRADUATES

Water Supply Engineering

101. Tanks, Stand Pipes, and Reservoirs.

102. Sources and Requirements of Water Supply for a City and Removal of Impurities.

103. Water Works Management and Economics.

104. Pumps and Pumping.

105. General Water Works Construction.

106. Biological and Chemical Examination of Potable Water.

107. Description of Water Supply Systems.

Sewerage

111. Sewage Purification.

112. Sewage Disposal Works.

113. General Sewerage Design and Construction.

114. City Sanitation.

115. Description of Sewerage Systems.

Road Engineering

118. Economic Aspect of Good Roads and Pavements.

119. Construction of Roads and Pavements.

Miscellaneous Subjects

121. Critical Description of Engineering Construction.

122. Translation of Technical Engineering Work from French or German.

123. Any Primary in Civil Engineering.

124. Any Primary in Theoretical and Applied Mechanics.

125. Any Primary in Mathematics, Mechanical Engineering, or Electrical Engineering—Secondary.

126. Indexing of Municipal and Sanitary Engineering Literature in Engineering Periodicals.

MUSIC

Course 1 will be counted for credit toward the regular degree for students in the College of Literature and Arts, provided they are at the same time enrolled *in the department of music.* Courses 7 and 8 are counted for credit for all students who take them.

1. History of Music.—Lectures on the development of music from its beginning among the Greeks to the present day, including the rise of dramatic music, the origin and progress of the oratorio,

the evolution and development of instrumental forms, and studies in the lives of the composers. Assigned collateral readings. *I. and II.; arrange time; (3).* Miss PUTNAM.

2. THEORY OF MUSIC.—a. A course in harmony, two hours a week, in class, through three semesters. *Emery's Harmony* with additional exercises. *Weitzman's Theory of Music. (13 in all).*

b. A course in counterpoint, two hours a week in class through one semester. *Richter's Counterpoint. (3).*

c. A course in fugue, two hours a week in class through one semester. *Richter's Fugue. (3).*

d. A course in musical analysis which may be taken at the same time with the studies in counterpoint and fugue. The second, third, and fourth parts of this course are open only to advanced students showing special aptitude. *(3).* Miss PUTNAM.

3. COURSE FOR THE PIANO.—(a) *Preparatory.* This course is equivalent to three years' work. It includes formation and position of fingers, hands, wrists, and arms, properties of touch, principles of technique, thorough drill in scale and arpeggio playing, and exercises in accent, rhythm, and expression. Music used: Herz, Scales and Exercises; Loeschhorn, Op. 65, 66; Lemoine, Op. 37; Heller, Op. 45; Bertini, Op. 29, 32; Czerny, Op. 299, Bks. 1, 2; Bach's Little Preludes; also sonatinas and easier sonatas and compositions by Clementi, Kuhlau, Haydn, Mozart, Mendelssohn, Merkel, Dussek, Diabelli, Grieg, Bargiel, and others. Miss FOX.

(b) *Collegiate.* First year. Studies in development of technique: Czerny, Op. 299, Bks. 3, 4; Czerny, Octave Studies; Cramer, Études; Jensen, Études; Bach, Two-Voice Inventions and French Suites; sonatas of Haydn and Mozart; easier Sonatas of Beethoven; Songs Without Words, Mendelssohn; compositions (smaller works) of Beethoven, Chopin, Schubert, Raff, Grieg, Chaminade, Moszkowski, and others. *(10 in all).* Professor JONES and Miss FOX.

Second Year. Daily technique; Czerny, Op. 740; Bach, Three-Voice Inventions and English suites; sonatas and other compositions of Scarlatti, Beethoven, Schubert, Schumann, Mendelssohn, Weber, Raff, Rubinstein, Saint Saens, Godard, MacDowell, and others. *(13 in all).* Professor JONES and Miss FOX.

Third Year. Selections: Clementi, Gradus ad Parnassum; Moscheles, Op. 70; Kullak, Seven-Octave Studies, Bk. 2; Bach, Well-Tempered Clavichord; sonatas and concertos by Mendelssohn, Weber, Beethoven, Hummel, Brahms, etc.; selections from works of Bach, Chopin, Schubert, Schumann, Brassin, Rubinstein, Liszt,

Moszkowski, Scharwenka, and other modern composers. *(17 in all)*. Professor JONES.

Fourth Year. Selections: Octave Studies; Clementi, Gradus, continued; Bach, Well-Tempered Clavichord, continued; Chopin, Études; Henselt, Études; Rubinstein, Études; sonatas by Beethoven, and concertos and other compositions by the great masters, classic and romantic, both of the older and the more modern schools. *(17 in all)*. Professor JONES.

4. a and b. COURSE FOR THE ORGAN.—Similar preparatory and collegiate courses for the organ will be offered for any one caring to make this the principal instrument. Professor JONES.

5. COURSE FOR THE VOICE.—(a) *Preparatory*. The placing of the voice and proper position of the mouth and throat. Randegger's Singing. The first fifteen of the Fifty Conçone Studies. Simple songs for rhythm, accent, and proper pronunciation of words.

(b) *Collegiate*. First Year: Voice production, Randegger's Singing continued. All the Fifty Conçone Studies. Songs of Mendelssohn, Schubert, and those of good modern composers. *(10 in all)*.

Second Year: Voice production. Viardot-Garcia's Hour of Study. Book I for technical work. Twenty-five and Fifteen Conçone Studies for soprano and tenor and the Forty Conçone for alto and bass. Songs of German, French, and English composers, and simple selections from operas and oratorios. *(13 in all)*.

Third Year: Voice production. Viardot-Garcia's Hour of Study, Book II. Bordigni's Thirty-six Studies for soprano or tenor, its equivalent, Sieber or Bordese for alto or bass. Selections from oratorios and from French, German, and Italian operas. Songs of considerable difficulty by German, English, French, and Italian composers. *(17 in all)*.

Fourth Year: Voice production. The Twenty-four Panoflra Studies. Lütgen's Operavocalisen, Book II. Italian, French, German, and English songs of all standard composers. Solos and concerted work from the modern as well as the standard operas and oratorios. *(17 in all)*. Miss FERNIE.

6. COURSE FOR THE VIOLIN.—(a) *Preparatory*. Violin methods by Hermann, Kayser, Sitt, Mazas, etc. Schradieck's Technical Studies. Études by DeBeriot, Murts. Easy solos.

(b) *Collegiate*. First Year: Études by Kreutzer, Mazas, Fiorillo, etc. Concertos by Viotti, Rode, Kreutzer, DeBeriot. Sonatas by Mozart, Beethoven, Handel, Gade. *(10 in all)*.

Second Year. Etudes by Rode, Gavinies and Campagnoli. Con-

certos by Spohr, Bruch, Vieuxtemps, Molique, etc. Sonatas by Beethoven and Grieg. *(13 in all.)*

Third Year: Caprices by Paganini. Concertos by Bruch, Mendelssohn, Saint Saens, Joachim. Ensemble work. *(17 in all).*

Fourth Year: Bach sonatas. Concertos by Beethoven, Bruch, Brahms, Tschaikowsky, Dvorak, Saint Saens. Ensemble work. *(17 in all.)* Miss PUTNAM.

7. University Orchestra. *Two hours' rehearsal once a week throughout the year. (2)* Professor JONES.

8. University Oratorio Society. *One hour rehearsal once a week throughout the year. (1).* Miss FERNIE.

PALEONTOLOGY*

1. ADVANCED PALEONTOLOGY.—The work outlined under geology 1d can do little more than introduce the general subject. To those who desire a better acquaintance with paleontology a course of two terms is offered.

This course will include: (a) Discussion of the biological relations to fossil forms along the lines indicated in Williams' Geological Biology; (b) a discussion of the principles of classification as applied to fossils, together with the characteristics which distinguish the larger groups, using Nicholson and Zittel as guides; (c) a study of the distribution and variations of the genera and species of one or more of the more important groups as illustrated by the collections of the University, using the various state reports and Miller's Handbook as aids. Ten hours per week. A major in botany and zoölogy would aid the student greatly in this work, but neither is required. See under mineralogy and geology. *I. and II.; daily; 3 and 4; (5 each semester).* Professor ROLFE and Mr. HUBBARD.

Required: Geology 1.

PEDAGOGY

1. THE PSYCHOLOGY OF THE TEACHING PROCESS.—(a) The nature and organic elements of the process deduced and exemplified in various subjects. (b) The science of the recitation deduced from the foregoing, including the central principles of school organization and management. *I.; daily; 6; (5).* Professor TOMPKINS.

Required: Two years of University work.

2. THE FUNDAMENTAL AIM AND PROCESS OF EDUCATION.—As determined by the nature of spiritual life, in its two-fold tension between ideal and real, and subject and object. The ethical aspect

of education. *II.; daily; 6; (5).* Professor Tompkins and Assistant Professor McGilvrey.

Required: Two years of University work.

3. The Logical Process Involved in Education.—(a) The Universal law of thought. (b) The organic phases of the logical process, ascertained and reduced to the details of instruction. Universal and special method. *I.; daily; 2; (5).* Professor Tompkins.

Required: Pedagogy 2.

4. The Esthetic Aspect of Education—In relation to the ethical and logical aspects developed in courses 2 and 3. (a) The esthetic interpretation of the world, the process and educational value. (b) The method and value of art and literary interpretation. *II.; daily; 6; (5).* Professor Tompkins and Assistant Professor McGilvrey.

Required: Pedagogy 2 and 3.

COURSES FOR GRADUATES

101. The Philosophy of Education.—The ultimate principle of education developed and applied to show how it controls all the details of life and school work.

102. The History of Philosophy and of Education.—An educational interpretation of the leading systems of philosophy from the Greeks to the present, with the historical development of educational ideals and educational systems.

PHILOSOPHY

1. Logic.—For the required credit in philosophy, students may select either of the following courses:

a. This course considers the nature of judgment and inference. Emphasis is laid upon practice in division, definition, forms of syllogism, deductive and inductive fallacies. This course is recommended to students who are interested in psychology or philosophy. *I.; M., W., F.; 2; (3).*

b. Special attention is given to fallacies and to the problems, grounds, and principles of induction. The study is designed not only to direct the student in practical reasoning and correct thinking, but also to familiarize him with the principles and methods of scientific investigation. *II.; M., W., F.; 2; (3).* Assistant Professor Daniels.

2. Outlines of Philosophy.—A general introduction to the study of philosophy. *I.; M., W., F.; 4; (3).* Assistant Professor Daniels.

3. Ancient and Mediæval Philosophy.—A rapid survey is taken of the development of speculative thought, beginning with the early Greek philosophers and continuing through the mediæval period. *I.; Tu., Th.; 3; (2).* Assistant Professor Daniels.

4. Modern Philosophy.—This course considers the formation and development of the problems and conceptions in philosophy from Descartes to the present time. Selections from the philosophical masterpieces of this period are carefully studied. Special emphasis is laid upon the philosophy of Kant. *II.; daily; 3; (5).* Assistant Professor Daniels.

5. Advanced Philosophy.—The seventeenth century philosophy. A critical study of Descartes, Spinoza, and Leibnitz. *I. and II.; Tu., Th.; 7; (2 each semester).* Assistant Professor Daniels.

Required: Two semesters in philosophy or psychology.

6. Practical Ethics.—In this course those questions which bear the closest relation to life and conduct are raised and discussed. The duties of the individual, the family, and the state are among the subjects considered. Special subjects in social ethics may be taken up. *I.; Tu., Th.; 1; (2).* Assistant Professor Daniels.

7. History and Criticism of Ethical Theories.—A careful and historical examination of the various types of ethical theory, including rational, hedonistic. eudemonistic, esthetic, and evolutional ethics. It is designed to make the student as familiar as the time allows with the writings of representative men of the various schools. *II.; M., W., F.,; 1; (3).* Assistant Professor Daniels.

8. Esthetics.—A brief history and a critical study of the various theories of the beautiful. Lectures and assigned readings. *II.; Tu., Th.; 4; (2).* Assistant Professor Daniels. [Open to juniors and seniors.]

COURSE FOR GRADUATES

101. The Philosophy of Kant.

PHYSICAL TRAINING

For Men

1. Gymnasium Practice.—Two half hours' class-work, and two half hours' prescription exercises, each week. Required of freshmen throughout the year. *With course 3, for 2½ hours.* Professor Shell.

2. Gymnasium Practice.—Two half hours' class-work and two half hours' prescription exercises each week throughout the year. *With course 4, 2½ hours.* Professor Shell.

Required: Physical Training 1 and 3.

3. LECTURES.—Lectures upon bodily health, including such subjects as the bath, sleep, diet, ventilation, clothing, injuries from over-work and study, sedentation, tobacco, alcohol, improper posture, etc. Once a week throughout the year. Freshmen are required to attend this course. *With course 1, 2½ hours.* Professor SHELL.

4. LECTURES.—Muscular form and action, effects of exercise, causation of fatigue, breathlessness, coördination, automatism, deformities, etc. Once a week throughout the year. *With course 2, 2½ hours.* Professor SHELL.

Required: Physical Training 1 and 3.

5. THEORY OF PHYSICAL TRAINING.—For those preparing as instructors. Study of the systems of gymnastics; methods of teaching; class work; use of apparatus; effects on body; measurements; testing, prescription. Throughout the year. *2 hours.* Professor SHELL.

Required: Courses 2 and 4.

6. COMPETITIVE ATHLETICS.—History of games and sports; general training; special forms and methods of coaching for track, fencing, wrestling, boxing, base ball, foot ball, basket ball, hockey, etc. Throughout the year. *2 hours.* Professor SHELL.

Required: Physical Training 2 and 4.

For Women

7. PRACTICE.—Class and prescription exercises in the gymnasium and field, three hours a week throughout the year. Required of freshmen. *With course 9, 3 semester hours.* Miss CARPENTER.

8. PRACTICE.—Three hours a week throughout the year. *2 hours.* Miss CARPENTER.

Required: Physical Training 7, 9.

9. HYGIENE.—The same as physiology 6, which see. Required of freshmen. *With course 7, 3 hours.* Professor KEMP.

PHYSICS

1. GENERAL PHYSICS.—A course of experimental lectures. The subjects for the first semester are mechanics, heat and sound; for the second semester, electricity and magnetism and light. The course is always to be taken in connection with the laboratory course, Physics 3. *I. and II.; Lectures, M., W., F., 5; Quiz, Tu. or Th., 3; (2½).* Professor CARMAN and Mr. CARPENTER.

Required: Mathematics 3 or 4.

2. MINOR COURSE IN PHYSICS.—The course includes selected parts in mechanics, heat, light, and electricity, and is designed for

students in general science and in medical courses. *Second semester. II.; Lectures, Tu. and Th., 5; Laboratory, 7 periods, arrange time; (5).* Professor CARMAN, Assistant Professor QUICK, and Mr. CARPENTER.

Required: Mathematics 3 or 4.

3. INTRODUCTION TO PHYSICAL MEASUREMENTS.—Laboratory experiments running parallel with Physics 1, and required of the same students. The experiments are quantitative, illustrative of lectures, and introductory to more advanced laboratory work. *I. and II.; 3 periods, arrange time; (1½).* Assistant Professor QUICK and Mr. CARPENTER.

Required: Mathematics 3 or 4.

4. ELECTRICAL AND MAGNETIC MEASUREMENTS.—Lecture and laboratory course in the theory and use of electrical and magnetic measuring instruments. *I. and II.; Lecture, Tu., Th., 6; Laboratory, arrange time; (4).* Assistant Professor SAGER.

Required: Physics 1, 3; Mathematics 9.

5. ADVANCED PHYSICAL MEASUREMENTS.—A laboratory course, supplemented by lectures. This course presupposes Physics 1 and 3, or equivalents. *I. and II.; arrange time; (3 or 5).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 1, 3; Mathematics 9 desired.

6. INTRODUCTION TO THEORETICAL PHYSICS.—A course of lectures and recitations on dynamics, thermodynamics, and the theory of optics and of electricity and magnetism. *I. and II.; M., W., F.; 6; (3).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 1, 3; Mathematics 9.

7. INVESTIGATION OF SPECIAL PROBLEMS.—An advanced laboratory course in continuation of Physics 5. The student is given one or more special subjects of investigation to be conducted under the direction of the professors of the department. The machine shop of the department makes possible special and original apparatus. *I. and II.; arrange time; (3).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 4 or 5, or equivalent.

8. MATHEMATICAL PHYSICS.—A course of lectures and recitations. The subjects treated are changed each year, and are chosen to cover the general subject in two consecutive years, each year being complete in itself. The electromagnetic theory of light is the special subject for 1899-1900. *I. and II.; arrange time; (3).* Professor CARMAN.

Required: Physics 5 or 6.

9. Advanced Electrical Measurements.—A course in the theory and practice of the calibration of electrical measuring instruments, using the potentiometer and other standard methods. *II.; arrange time; (1).* Assistant Professor Sager.

Required: Physics 4.

10. Introduction to Electrical Measurements.—A course for sophomore electrical engineering students. *II; last nine weeks; arrange time; (1).* Professor Carman and Assistant Professors Sager and Quick.

Required: Physics 1, 3, for first semester.

GRADUATE COURSES

101. Advanced Physical Measurements and Investigation.

102. Mathematical Physics.

103. Mathematical Theory of Electricity and Magnetism for Engineers.

PHYSIOGRAPHY

1. Physiography.—Three objects are aimed at in this course, viz.: To promote the change in the method of teaching geography so generally advocated in recent years, to provide a rational basis for the study of geographic distribution of animals and plants, to place in their proper light the geographic factors in the history of man and his present well being.

The first part of the semester is devoted to a discussion of the general principles of meteorology, oceanography, and climatology. This is followed by a study of the physical geography of North America and Europe, with reference to the objects named above.

It is assumed that the student has a good understanding of political geography, and of the principles of land development, etc., as set forth in such works as Davis's Physical Geography, Mill's Realm of Nature, or Tarr's Physical Geography. *II.; daily; 6-8; (5).* Professor Rolfe and Mr. Hubbard.

Required: Geology 1 or 3, or an entrance credit in Geology.

PHYSIOLOGY

1. Major Course.—This course is founded on the previous thorough training of the student in physics, chemistry, and zoölogy. The course is designed primarily to prepare those taking it to enter upon the study of medicine. The work begins with a comprehensive study of the microscopic structure of the tissues in general, and later includes the structure of the organs in particular, with special

relation to their functions. The course, together with courses in chemistry recommended for prospective medical students, will complete a very thorough study of physiological chemistry, so far as it relates to the normal composition and functions of the organs and excretions. Frequent demonstrations in experimental physiology are given before the class, and the student is required to perform a number of such experiments under the immediate direction of the instructor. In addition, the students, working in small groups, will be required to perform assigned experiments, and to submit their records and data for examination and criticism. Practical laboratory work is insisted on throughout. *I. and II.; daily; 3; (5 each semester).* Professor KEMP.

Required: Physics 1, 3; Chemistry 1, 2, 3a, 5a, 9, 9c; Zoölogy 2.

2. ADVANCED COURSE.—Continuation of Physiology 1 through a second year. This course is designed for students who wish to get as thorough a training as possible for the study of medicine, and who can afford to take the full science course at the University leading to the B.S. degree. The work will be made up of lectures, assigned reading, and experiments in the laboratory conducted by the students themselves, under the supervision of the instructor. Course 1 will necessarily give but a limited opportunity for such personal work on the part of the student. Course 2 will enable him to have a fair degree of experience with methods and apparatus used in the most advanced lines of medical study. *I. and II; daily; 3; (5 each semester).* Professor KEMP.

3. INVESTIGATION AND THESIS.—The laboratory of the physiological department is well equipped with instruments of precision for research in histology, physiological chemistry, experimental physiology, and pharmacology. Every facility and encouragement, so far as the resources of the laboratory permit, are offered to those prepared to avail themselves of these for researches leading to theses for the bachelor's, master's, or doctor's degree, or for carrying on original work for publication.

4. MINOR COURSE.—This course is planned for literary students and for students of natural science specializing in other lines. Especial emphasis is laid upon those facts that serve as a basis for practical hygiene, and for helping students to teach physiology in high schools. It will consist of lecture demonstrations, recitations, and laboratory work. Students who have had chemistry or zoölogy in high schools may be admitted to the course at the option of the instructors. *II.; daily; 7; (5).* Professor KEMP.

Required: Chemistry 1; Zoölogy 10.

5. Advanced Physiology.—There are here included the following lines of laboratory work, any one or more of which may be pursued independently of the others: (a) The physiology of foods, and digestion; (b) the blood, circulation, and respiration; (c) the excretions, especially urine-analysis; (d) general physiology of nerve and muscle; (e) advanced vertebrate, especially human, histology. Work to be arranged after consultation with Professor Kemp.

6. Hygiene.—This course is offered to both men and women, and must be taken by young women who take physical training for credit. It is designed to impart a knowledge of the conditions of bodily health and activity. The course deals with those practical hygienic problems of everyday life that are wholly or in large part under the control of each individual. *I.; M.; 8; (1).* Professor Kemp.

PSYCHOLOGY

1. General Elementary Psychology.—This course begins with a detailed study of the anatomy and physiology of the sense organs and central nervous system. This is followed by an experimental and descriptive study of the higher mental functions. Laboratory work forms a prominent feature of the course. *II.; daily; 1; (5).* Assistant Professor Hylan.

Required: At least one year of University work.

2. Experimental Psychology.—The object of this course is to give the student an acquaintance with the normal psychical phenomena. About one hundred experiments are performed in sensation and perception, followed by experimental studies of attention, memory, association, emotion, and volition. Each student is required to keep a careful record, in notes and drawings, of the experiments performed, and to become familiar with the literature. *I.; daily; 7; (5).* Assistant Professor Hylan.

Required: Psychology 1 or 4.

3. Comparative Psychology.—In this course the development of mind is traced through the animal scale. The higher forms of mental development are correlated with the mental activities of the child and the savage. Special laboratory facilities are accessible for the study of chicks, frogs, protozoa etc., and experimental work is continued throughout the course. *Romanes and Lloyd Morgan,* with studies in anthropology and child life. *II.; daily; 7; (3).* Assistant Professor Hylan.

Required: Psychology 1 or 4.

4. EDUCATIONAL PSYCHOLOGY.—This course aims to apply the principles and resources of modern psychology to the needs of the teacher. Memory, attention, imagination, emotion, and will are analyzed, and the methods of their cultivation and control treated. Tests of the sense organs and of mental ability, and the principles of economy and mental hygiene, are taken up. Also the systematic observation of children, mental development and its physiological accompaniments, the child's instincts, emotions, and social relations. The course is amply illustrated by views, drawings, apparatus, and experiments. *I; daily; 1; (5).* Assistant Professor HYLAN.

Required: At least one year of University work.

5. PSYCHOLOGICAL SEMINARY.—It is the plan of this course to take up the work of contemporary psychologists more exhaustively than is provided for in other courses. The work is preceded by a systematic study of the history of psychology, beginning with Hobbes, and the development of the various phases of the subject is traced to the present time. A knowledge of the history of modern philosophy will be found a valuable preparation. *I. and II.; arrange for two hours a week; (4 each semester).* Assistant Professor HYLAN.

COURSE FOR GRADUATES

101. RESEARCH COURSE.—Though primarily for graduates, the course may be taken by seniors who give evidence of suitable preparation. If laboratory work, it must be preceded by Psychology 1 and 2. For other than laboratory work, the required preparation will depend upon the subject.

PUBLIC LAW AND ADMINISTRATION

1. POLITICAL INSTITUTIONS.—Comparative study of modern political systems, their historical development and practical operation. Lectures, assigned readings, reports, and discussions. The first semester is devoted to the leading features of national and state government of the United States; in the second semester the governments of the leading European states are studied. In connection with History 2 this course makes a full study running through the year. (See announcement under History 2.) *I. and II.; M., W., F.; 2; (3).* Assistant Professor TOOKE.

2. JURISPRUDENCE.—Elementary course in the origin, development, and classification of law, followed by an introduction to the fundamental principles of the English Common Law. *I. and II; Tu., Th.; 3; (2).* Assistant Professor TOOKE.

3. Roman Law.—Early history. The classical jurisprudence. Legislation of Justinian. Influence of the Roman system. Readings and lectures. *I.; Tu., Th.; 3; (2). First semester, 2 hours.* Assistant Professor Tooke.

Required: A reading knowledge of Latin.

4. International Law.—Sources and historical development. Essential powers of states, their rights and their obligations. Laws and usage in time of war. Topics in American diplomacy. *II.; Tu., Th.; 1; (3).* Assistant Professor Tooke.

Required: Public Law and Administration 1.

5. Comparative Administrative Law.—General principles of administrative law of the United States (national and commonwealth), England, France, and Germany. The appointment, tenure, and duties of officers. Historical and comparative study of local government. *I. and II.; M., W., F.; 3; (3).* Assistant Professor Tooke.

Required: Public Law and Administration 1 and 2. [Not given in 1899-1900.]

6. Comparative Constitutional Law.—The first semester is devoted to a study of American Constitutional law; the work of the second semester is a comparative study from original sources of the constitutions of the leading European states. *I. and II.; M., W., F.; 3; (3).* Assistant Professor Tooke.

Required: Public Law and Administration 1 and 2.

7. Municipal Corporations.—History and legal status of the American municipality. To supplement course 5. *II.; Tu., Th.; 2; (2).* Assistant Professor Tooke. [Not given in 1899-1900.]

9. Seminary in Municipal Institutions.—Open to graduates and seniors. *I. and II; arrange time; (2).* Assistant Professor Tooke.

RAILWAY ENGINEERING

1. Locomotive Engines.—This work is a study of the constructive features of the locomotive in all its parts, a special study of types is made with reference to relations between boiler capacity, size of cylinder, and weight on drivers for maximum speed or hauling capacity. Includes also a study of all accessory apparatus used in the operation of the locomotive. *I.; Tu., Th.; 1; (2).*

2. Locomotive Engine Design.—The proportions and dimensions of standard locomotives are carefully studied. Calculations and designs, relating to boiler and engine details, cylinder proportions

for compound types of slide, valves and valve gears. *I.; Tu., W., Th.; 2, 3, and 4; (3).*

3. SHOP SYSTEMS.—Lectures and readings. A study of the proceedings of the societies and railway clubs. The technical press and visits of inspection. *I.; Tu., Th.; 6, 7, and 8; (2).*

4. LOCOMOTIVE ROAD TESTS.—Arrangements for locomotive road tests have been perfected with several roads entering Champaign and Urbana. Already five locomotives have been equipped for this work and tests made in actual service conditions. This work is greatly facilitated by the use of the dynamometer car which is now at the service of the department. The laboratory work of the course is largely along this line. *I.; M., W.; arrange time; (4).*

5. COMPRESSED AIR IN RAILWAY SERVICE.—This will include a careful study of the construction and operation of the air-brake system in detail. The air-brake instruction cars of the I. C. R. R. and the C. C. C. & St. Louis Ry. make frequent stops at these points, and the instructors in charge kindly devote sufficient time to illustrate and explain the operation of the air-brake.

The use of compressed air in shop service is also studied. *I.; M.; 2; (1).*

6. RAILWAY ESTIMATES.—A study of costs of materials and repairs. Forms of specifications for supplies. Costs of operating foreign and American practice compared. *II.; Tu., Th.; 2, 3, and 4; (2).*

7. ADVANCED DESIGNING.—Under this head attention will be paid to details of rolling stock, pumps, gas, and oil engines for water supply. Special machinery for repair shop service, turn tables, and advanced problems relating to locomotive design. *II.; Tu., W., Th.; 6, 7, and 8; (3).*

8. DYNAMOMETER CAR TESTS.—Investigations will the made under actual road conditions relating to hauling capacity of engines, train resistance, due to acceleration, grades, curves, and wind pressure. Air-brake service inspections. Automatic records of track conditions as to alignment, gauge surface, joints, and elevation of rails. Tests at stationary plants and railway shops will be made.

Arrangements for careful and scientific sampling of fuels, boiler waters, oils, paints, varnishes, and railway supplies for analysis and tests will be included in this work. *II.; M., F.; arrange time; (2).*

RHETORIC AND ORATORY

1. Rhetoric and Themes.—Required for students in the College of Literature and Arts. *I. and II.; M., W., F.; sections at 1, 3, and 7; (3).* Assistant Professor T. A. Clark and Miss Cook.

2. Rhetoric and Themes.—Required for students in the Colleges of Agriculture, Science, and Engineering. *I. and II.; M., W., F.; sections at 1, 2, and 3; (3).* Miss Kyle.

3. Higher English Composition.—Short daily themes with longer exercises every fortnight. *I. and II.; M., W., F.; sections at 2, 4; (5).* Assistant Professor T. A. Clark.

Required: Rhetoric and Public Speaking 1 or 2.

4. Argumentative Composition.—Lectures and text-book work on the principles of argumentative discourse. Weekly practice in the preparation of briefs, and in the writing and delivery of forensics. *I. and II.; M., W., F.; 5; (3).*

Required: Rhetoric and Oratory 1 or 2.

5. Oral Discussions.—The collection and arrangement of data for discussions. Frequent oral debates, with special attention given to good methods of delivery. *I. and II.; Tu., Th.; 5; (2).*

Required: Rhetoric and Oratory 1 or 2.

SOCIOLOGY

[See under Anthropology and Economics, pp. 170, 195.]

SPANISH

1. Grammar and Reading.—Edgren's Spanish Grammar; Knapp's Spanish Readings; Cervantes' Don Quijote; outlines of Spanish literature. *I. and II.; arrange time; (3).* Assistant Professor Fairfield.

THEORETICAL AND APPLIED MECHANICS

[See Mechanics, p. 226.]

VETERINARY SCIENCE

1. Anatomy and Physiology.—The anatomy and physiology of the domestic animals, diseases of the bony structure and lameness. The instruction is given by lectures aided by demonstrations with use of skeletons, and of other apparatus, as follows: Dr. Auzoux's complete model of the horse, which is in ninety-seven pieces and exhibits

three thousand details of structure; *papier-maché* model of the horse's foot; the teeth of the horse; and dissections of animals. This work is supplemented with the study of text books. Strangeway's Veterinary Anatomy, Mills's Animal Physiology, and Diseases of Horses and Cattle. *II.; daily; 4; (5).* Professor McIntosh.

2. Principles and Practice of Veterinary Medicine.—This subject is taught by lectures and text-books on the diseases of domestic animals, and is illustrated with specimens of morbid anatomy and by observations and practice at the free clinics. The latter are held at the Veterinary Infirmary once a week. The students assist in the operations, and thus obtain a practical knowledge of the subject. Dissections and *post-mortem* examinations are made as cases present themselves. Text-books, Diseases of Horses and Cattle, by D. McIntosh, and Williams's Practice of Veterinary Medicine and Surgery. *I.; daily; 4; (5).* Professor McIntosh.

3. Veterinary Materia Medica.—This subject, which treats of the agents for the cure of disease or injury, and for the preservation of health among domestic animals, is taught by lectures and text-books, illustrated by specimens of the drugs used in veterinary practice. The compounding of medicines also receives attention. Textbooks: Finlay Dun's Veterinary Materia Medica. *I. and II.; daily; 3; (5).* Professor McIntosh.

ZOÖLOGY

1. General Invertebrate Zoölogy.—The work here described is so related to Zoölogy 2 that both form a continuous course of a year, either semester of which may be taken first. Commonly, however, Zoölogy 1 should be taken in the freshman year, preceding Zoölogy 2. It is devoted especially to a series of laboratory studies of invertebrate types, and to lectures on the morphology, physiology, and relations to nature, of this selected series, and on cytology and general zoölogical theory. *II.; Lecture, M. W., F.; 3; Laboratory 7 periods; arrange time; (5).* Assistant Professor Smith.

Required: Art and Design 1, an entrance credit in chemistry or Chemistry 1, an entrance credit in zoölogy or Biology 1 or Zoölogy 5.

2. Vertebrate Zoölogy and Comparative Anatomy.—In the laboratory work of this course principal attention will be given to the anatomy of Necturus and to anatomical and systematic studies of fishes, birds, and mammals, especial reference being had to the anatomy of man. The more difficult parts of laboratory technology will

be given in this course, which will also contain lectures on the general theory of organic development as illustrated by the doctrine of the descent of man. *I.; daily; 4, 5; (5). First semester.* Assistant Professor Smith.

Required: Biology 1, or Zoölogy 1.

3. Embryology.—This course begins with a study of the sex cells and a discussion of theories of heredity, followed by a consideration of the early stages in the development of the egg. The formation of the vertebrate body is then studied in the amphibian, the chick, and the pig. Instruction is given in the preparation of embryological material and in graphic reconstruction from serial sections. *II.; daily; 2 and 3; (5).* Assistant Professor Kofoid.

Required: Zoölogy 2.

4. Advanced Zoölogy.—Under this head is offered an opportunity for individual advanced work for one or two semesters along lines to be selected in consultation with the instructor. This may include field zoölogy, but is essentially a research course for students specializing in zoölogy. One semester of this course or zoölogy 6 will be required of all intending to graduate with a zoölogical thesis. Students in this course will commonly be assembled as a class only for seminary work. *I. and II.; arrange time; (5 each semester).* Professor Forbes, or Assistant Professor Smith.

Required: Zoölogy 1 and 2.

5. Elementary Entomology.—This is a laboratory and lecture course in general entomology, open to all University students, pursued without especial reference to economic ends, complete in itself, but leading to the course in general entomology (Zoölogy 6). The laboratory work is strictly entomological, but the lecture course is in great measure a course in general biology, with entomological illustrations. *I.; daily; 1 and 2; (5).* Professor Forbes.

6. General Entomology.—This is a course of two semesters, the work in either of which may be taken separately, offered to students who have had a sufficient amount of elementary zoölogy as a preparation. It comprises laboratory and library studies, field work, insectary work, field observation, the collection and preservation of specimens, and the preparation and illustration of manuscript. Special instruction is given in this course in the art of entomological illustration under the supervision of an expert zoölogical artist. This course, or one semester of zoölogy 4, will be required of all intending to graduate with a zoölogical thesis. *I. and II.; daily; 3 and 4; (5).* Professor Forbes.

Required: Zoölogy 1 or 5.

7. Practical Entomology.—By means of laboratory studies and lectures and field and insectary observations, students will be made familiar with the commonest and most important injurious insects, and with means of preventing or arresting their injuries. *I. and II.; daily; 6 and 7; (5).* Professor Forbes.

8. Thesis Investigation.—Candidates for graduation in the College of Science who select a zoölogical subject as a thesis are required to spend three hours a day during their senior year in making an investigation of some selected zoölogical subject. While this work is done under the general supervision of an instructor, it is in its methods and responsibilities essentially original work. *I. and II.; daily; arrange time; (5).* Professor Forbes and Assistant Professor Kofoid.

Required: Two years in zoölogical courses, including one semester of zoölogy 4.

COURSES FOR GRADUATES

101. Systematic and Faunistic Zoölogy.—This course consists of studies of invertebrate animals (including insects), and of aquatic vertebrates, so directed as to give as nearly as possible an exhaustive knowledge of a taxonomic group or of a selected geographic assemblage. If a suitable taxonomic group is chosen, its space and number relations within a definite area will be thoroughly worked out by the precise methods of modern faunistic zoölogy, including quantitative collections made by uniform methods at regular periods, and the comparative measurement or enumeration of such collections. If a geographic assemblage be selected, critical determinative work will be followed by both qualitative and quantitative studies of the various groups associated, with a view to accumulating data for an examination of the interactions of the assemblage.

102. Advanced Economic Entomology.—This is a research course in systematic and experimental entomology which involves the application to insects injurious to agriculture and horticulture of the methods and general ideas of the preceding course. It is intended to prepare students in a thoroughgoing manner for first-class investigation work in this field, and for the direction of entomological operations in agricultural experiment stations.

DEGREES

BACHELORS' DEGREES

The usual bachelors' degrees are conferred upon those who satisfactorily complete the courses of study described under the different colleges and schools. A candidate for a bachelor's degree must pass in the subjects marked *prescribed* in his chosen course, and must conform to the directions given in connection with that course in regard to electives. In the College of Literature and Arts, of Science, and of Agriculture, credit for 130 hours is required for graduation. In the College of Engineering and in the schools the candidate must complete the course of study as laid down. The number of hours required includes five in military science, and two and one-half in physical training, for men, and for women three in physical training. Men excused from the military requirements, and women who do not take courses in physical training, must elect in lieu thereof an equivalent number of hours in other subjects.

In all cases in which a thesis is required,* the subject must be announced not later than the first Monday in November, and the completed thesis must be submitted to the dean of the proper college by June 1st. The work must be done under the direction of the professor in whose department the subject naturally belongs, and must be in the line of the course of study for which a degree is expected. The thesis must be presented upon regulation paper, and will be deposited in the library of the University.

1. The degree of Bachelor of Arts is conferred on those who complete a course in the College of Literature and Arts.

2. The degree of Bachelor of Science is conferred on

*See requirements for graduation in the different colleges.

those who complete a course in the College of Engineering, of Science, or of Agriculture. The name of the course will be inserted in the diploma.

3. The degree of Bachelor of Law is conferred on those who complete the course in the School of Law.

4. The degree of Doctor of Medicine is conferred on those who complete the course in the School of Medicine.

5. The degree of Bachelor of Library Science is conferred on those who complete the course in the School of Library Science.

6. The degree of Bachelor of Music is conferred on those who complete one of the courses in the School of Music.

7. The degree of Graduate in Pharmacy is conferred upon those who have satisfied the requirements therefor in the School of Pharmacy.

ADVANCED DEGREES

No degrees are given for study *in absentia*, except that graduates of this University, who become members of the Graduate School and reside elsewhere, may receive a second degree, upon the completion of their courses of study within not less than three years of the date of registration. For a graduate of this University who has won recognized distinction in a special line of investigation, and who otherwise fulfills the conditions for a doctor's degree, the requirement of residence for that degree will be such as may be imposed by the General Faculty of the University, on presentation of the case by the Council of Administration. Advanced degrees are conferred by the Trustees of the University only upon recommendation of the General Faculty, based upon information furnished by the Council of Administration.

SECOND DEGREES

The second degrees conferred by this University are as follows:

Master of Arts, after Bachelor of Arts.

Master of Science, after Bachelor of Science in courses of the colleges of Agriculture and Science.

Master of Architecture, after Bachelor of Science in courses in Architecture and Architectural Engineering.

Master of Laws, after Bachelor of Laws, in the School of Law.

Master of Library Science, after Bachelor of Library Science.

Civil Engineer, after Bachelor of Science in the course in Civil Engineering.

Electrical Engineer, after Bachelor of Science in the course in Electrical Engineering.

Mechanical Engineer, after Bachelor of Science in the course in Mechanical Engineering.

Pharmaceutical Chemist, after Graduate in Pharmacy.

Graduates of other colleges and universities which have equivalent requirements for baccalaureate degrees may be given second degrees determined in kind by comparison with the usage described above.

All candidates for second degrees are required to register in the Graduate School; to conform to the conditions outlined under "Admission," "Registration," and "Examinations" (pp. 146 and 147) ; to pursue an approved course of study for one academic year in residence, or, in the case of graduates of this University, for three years *in absentia;* and to pass satisfactory examinations upon all the studies of the approved course.

Each candidate for a second degree must present an acceptable thesis in the line of his major subject of study. The subject of this thesis must be announced to the Dean of the General Faculty not later than the first Monday in November of the academic year in which the course is to be completed. The completed thesis, upon regulation paper, must be presented, with the certified approval of the professor in charge, to the Council of Administration not later than June 1st.

The period of required study begins from the date of registration in the Graduate School.

DOCTOR'S DEGREE

The degree of Doctor of Philosophy, or Doctor of Science, may be conferred upon any member of the Graduate School of not less than three years' standing who shall have reached high attainments in scholarship, including a sufficient knowledge of the Latin, French, and German languages to serve the purposes of research in his principal specialty, who shall have shown marked ability in some line of literary or scientific investigation, and shall have presented a thesis giving clear indications of such scholarship and of such power of research. At least the first two, or the last one, of the three years of study must be in residence at the University, and the entire course of study must be in accordance with the regulations of the Graduate School.

The time and study required for a master's degree may be included in the three years required, but approval of a course of study for a doctor's degree must be upon the condition that the candidate is prepared through his baccalaureate work, or otherwise, to enter at once upon advanced studies in the line of this major subject, and that work on this major subject be continued through the three years.

The final examination of a candidate for the doctor's degree is conducted by a committee consisting of the head of the department under which the major subject has been pursued, as chairman, and of not less than two additional members of the General Faculty of the University, appointed for the purpose by the Council of Administration. This examination covers the subjects of the course approved for the degree, but is specially searching upon that on which the major work has been done. This examination occurs in the week preceding that upon which commencement day occurs.

Each candidate for a doctor's degree must announce to the Dean of the General Faculty a thesis subject not later than the first Monday in November of the academic year at the close of which the award of the degree is ex-

pected. A fair copy of the thesis must be submitted, with a certified approval of the committee on examinations, to the Council of Administration not later than the first day of June. If the thesis is approved by the Council the candidate must have it printed and must deposit not less than one hundred copies with the librarian of the University.

FELLOWSHIPS

The Trustees of the University have established eight fellowships, each with a stipend of three hundred dollars, payable in ten monthly installments.

The rules governing appointments to these fellowships are as follows:

1. The purpose of these fellowships shall be to promote advanced scholarship and original research in the University.

2. The fellowships shall be open to graduates of this and similar institutions. Those who are to complete an under-graduate course previous to the academic year for which appointments are made shall be eligible, with others, as candidates.

3. Nominations to fellowships, accompanied by assignments to special departments of the University for instructional work, shall be made by the Council of Administration to the Trustees of the University, upon applications received by the President of the University each year, not later than the twenty-fifth day of April. These nominations shall be made at a meeting of the Council called for that purpose within the month of May. The appointments by the Trustees are made at their regular meeting in June, and shall take effect the first day of the following September. Vacancies may be filled by similar nominations and appointments at other times.

4. Nominations to fellowships shall be made upon the grounds of worthiness of character, scholastic attainments, and promise of success in the principal line of study

or research to which the candidate proposes to devote himself. Consideration shall also be given to the probable value or usefulness of the services of the candidate as an assistant in instruction, but this shall not be deemed the primary object of the appointment. Other things being equal, preference shall be given to those graduates of this University who have pursued a specialized course.*

5. Candidates must present, with their applications, full information concerning themselves and their qualifications for advanced study and research work, including any written or printed essays or results of investigation, and must name the subject in which they wish to do their major work.

6. Fellowships shall be good for one year. Appointments may not be usually renewed to the same persons, and in no case for more than one additional year; but an appointment as *honorary fellow*, without stipend, may be made as specified for paid fellowships in the case of any one who has held a regular fellowship and has shown distinguished merit in his work.

7. Fellows shall be constituted members of the Graduate School, shall have all of the privileges and bear all of the responsibilities of such membership. Each regular fellow may be called upon to render service in instruction throughout the year in the department in which his major subject lies, equal to one hour daily of class instruction or to two hours daily of laboratory supervision. This service will receive such credit as the Council of Administration may determine in each case. Blank forms for application may be obtained by addressing the Registrar.

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*See pp. 62 and 119. All members of the Colleges of Engineering and of Agriculture, of the chemical and mathematical groups in the College of Science, and of the Schools of Law, Library Science and Music, are considered as pursuing specialized courses.

SCHOLARSHIPS

STATE*

A law passed by the General Assembly of the State of Illinois at the session of 1895 provides that there shall be awarded annually to each county of the state one state scholarship, which shall entitle the holder thereof, who shall be a resident of the senatorial district to which he is accredited, to instruction in any or all departments of the University of Illinois for a term of four years, free from any charge for tuition or any incidental charge, unless such incidental charge shall have been made for materials used or for damages needlessly done to property of the University; *Provided,* that in counties having two or more senatorial districts there shall be awarded annually one additional scholarship for each of said senatorial districts.

A competitive examination under the direction of the Superintendent of Public Instruction shall be held at the county courthouse in each county of the state upon the first Saturday of June in each and every year by the county superintendent of schools upon such branches of study as said Superintendent of Public Instruction and the President of said University may deem best.

Questions for such examinations shall be prepared and furnished by the President of the University to the Superintendent of Public Instruction, who shall attend to the printing and distribution thereof to the several county superintendents of schools prior to such examinations.

The law also provides that in case the scholarship in any county is not claimed by a resident of that county, the Superintendent of Public Instruction may fill the same by appointing some candidate first entitled to a vacancy in some other county.

Candidates to be eligible to a state scholarship must be at least sixteen years of age, and must have been residents

*These scholarships replace the honorary scholarships and the accredited school scholarships heretofore given.

of their respective counties for the year preceding the examination.

A student holding a state scholarship who shall make it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds to defray his expenses while in attendance may, in the discretion of the President, be granted such a leave of absence, and may be allowed a period not exceeding six years from the commencement thereof for the completion of his course at said University.

The law contemplates that the candidate who passes this competitive examination should afterward pass the regular entrance examination to the University. It has been thought best to combine these examinations so that the successful candidate may be admitted to the University without further examination. To this end the examination will be held on the first Saturday in June and the Friday preceding (June 2 and 3, 1899, and June 1 and 2, 1900). The subjects for examination will be the same as stated under the head of "Admission by Examination," p. 42.

Any person, whether a candidate for a scholarship or not, may be examined for admission to the University at these state scholarship examinations.

MILITARY

Students who have gained 20 hours in class room military instruction and 20 in drill practice, are eligible for appointment as commissioned officers of the battalion. Those attaining this rank may be awarded special scholarships, good for one year, and equal in value to the University term fees for the same length of time.

PRIZES

THE HAZLETON PRIZE MEDAL

Capt. W. C. Hazleton provided in 1890 a medal, of beautiful and artistic design, which is to be awarded, at a

competitive drill to be held near the close of the year, to the best drilled student. Each competitor must have been in attendance at the University at least sixteen weeks of the current college year; must not have had more than four unexcused absences from drill; and must present himself for competition in full uniform.

The award is made for excellence in these particulars:

1. Erectness of carriage, military appearance, and neatness.
2. Execution of the school of the soldier, without arms.
3. Manual of arms, with and without numbers.

The successful competitor will receive a certificate setting forth the facts, and may wear the medal until the 15th day of May following, when it will be returned for the next competition.

IN ORATORY

The Trustees of the University appropriate every year the sum of one hundred dollars for prizes in debate. The amount is divided into three prizes, of fifty, thirty, and twenty dollars, respectively, and these are awarded to the three participants whose work is adjudged best.

The debate is held some time in the month of February. A preliminary contest takes place in December, and is open to all members of the three upper classes. From the list of contestants in the preliminary debate six are selected to take part in the final competition.

INTERSCHOLASTIC ORATORICAL CONTEST

A medal of the value of twenty dollars is offered annually by the University to the high schools of the state for the best oration delivered in a competitive contest between their representatives. This contest takes place in the spring at the time of the interscholastic athletic meet.

BENEFICIARY AID

CHICAGO CLUB LOAN FUND

The Chicago Club of the University of Illinois offers two loans of $250.00 each, payable to the beneficiary, $100.00 the first year, $75.00 the second year, $50.00 the third year, and $25.00 the fourth year. The loans are offered to residents of Cook County, Illinois, only, and are to be awarded upon competitive examination to those obtaining the highest average grades. The loans are due six years after matriculation. They bear no interest while the students is in the University, but six per cent. after graduation. The examination questions are prepared at the University and cover the same subjects as those for the state scholarships.

The beneficiaries of this fund also have their incidental fees, amounting to $24.00 a year, remitted by the trustees.

CLASS OF 1895 LOAN FUND

This is a fund of $250.00, established by the class of 1895, to be loaned to needy and deserving students. According to the conditions of the gift, one-fifth of the amount is to be loaned annually, and is open to members of the freshman class only. No person may receive the benefit of the fund more than four years. The loan bears interest at the legal rate from the time the recipient leaves the University, and is due, one-half in five years, and one-half in six years, after matriculation. The management of the fund is in charge of the Council of Administration.

SOCIETIES AND CLUBS

LITERARY SOCIETIES

The Adelphic and Philomathean societies for men, and the Alethenai for women, occupy large halls, which the members have appropriately furnished and decorated. Meetings are held Friday evenings throughout term time.

THE CHRISTIAN ASSOCIATIONS

The Young Men's and the Young Women's Christian Associations are active and useful organizations, and have a large membership.

Subscriptions have been made by students and graduates, amounting to $23,000.00, toward a new building for these organizations. A canvass has been started outside with the hope of raising the sum to $32,000.00. If this is successful the building will be begun at once. An excellent site has been purchased.

CLUBS AUXILIARY TO COURSES OF STUDY

AGRICULTURAL CLUB

This club meets semi-monthly. It is devoted to the discussion of topics of theoretical and practical interest to students of agriculture. All students in the College of Agriculture are eligible to membership.

ARCHITECTS' CLUB

This club meets once in two weeks for the consideration of current topics of architectural interest and subjects connected with the study of architectural history. All students pursuing architectural studies are eligible to membership.

CIVIL ENGINEERING CLUB

This club meets the second and fourth Saturday evenings of each month for the reading and discussion of papers relating to civil engineering. All students pursuing the civil engineering course may become members.

THE ENGLISH CLUB

The English Club is composed of members of the Faculty, and of students who have done especially good work in English. The work of the club is confined to the study of recent writers of fiction and of poetry. The membership is limited to thirty. Meetings are held on the second Monday of each month.

FRENCH CLUB

Le Cercle Français includes students who have had at least one year's work in French. The club meets once a month throughout the year. Its proceedings are conducted in French, the object being to supplement the work of the class room by the practical handling and understanding of the language.

THE LATIN CLUB

This is an organization for the purpose of promoting interest in the language and institutions of the Roman world. It meets once in two weeks.

LIBRARY CLUB

The library staff and the Library School have organized a Library Club which meets once in three weeks throughout the college year. The club considers literary topics which are allied to the library work, but does not deal with the technical subjects which are included in the library school course.

MECHANICAL AND ELECTRICAL ENGINEERING SOCIETY

This club meets on the first and third Saturday evenings of each month. All students pursuing mechanical and electrical engineering studies are eligible to membership. Papers relating to subjects of interest to members are presented and discussed at each meeting.

MEDICAL CLUB

The Medical Club is composed of students, irrespective of courses and departments, who are preparing for medical study, or who are for any reason interested in medical subjects. Its programs consist of lectures by members of the biological faculty and by physicians, and of papers prepared by members of the club. It meets weekly.

MUSICAL CLUBS

These are described under the School of Music.

ZOÖLOGICAL CLUB

The University Zoölogical Club is composed of advanced students and instructors in the zoölogical and physiological departments, together with such other biological instructors and advanced students as are interested in its subjects. Its sessions are devoted to the presentation and discussion of abstracts of recent biological literature and of the results of investigation by the members of the club. It meets weekly in Natural History Hall.

MILITARY SCIENCE

The military instruction is under the charge of a graduate of the U. S. Military Academy and officer of the regular army of the United States. The course as a whole has special reference to the duties of officers of the line. A full supply of arms and ammunition is furnished by the War Department, including 300 cadet rifles and accoutrements, and two field pieces of artillery.

Every male student able to perform military duty, and not excused for sufficient cause, is required to drill twice each week until he has gained credit for 20 semester hours. He is also required to study Drill Regulations for Infantry and to recite upon the same once a week until he gains credit for one semester hour. This practical instruction begins as soon as possible after he enters the University; but a preparatory student carrying no freshman studies and not expecting to matriculate during the year, is not permitted to drill. The standings in study and drill are placed on record, with other class credits; one semester of recitations and drill count two hours, and the three remaining semesters of drill three hours, and are requisite to graduation in every University course.

Appointments in the battalion are made on nomination by the professor in charge and confirmation by the Faculty.

Students who have passed two examinations in the drill regulations and have gained 5 hours' credit in drill practice

are eligible for corporals; those having 10 hours' credit in each are eligible for sergeants; and those having 20 hours' credit in each, for lieutenants and for officers of higher rank.

The battalion (four companies) is composed mainly of the members of the freshman and sophomore classes, the first supplying the corporals, the second, the sergeants. The lieutenants are taken from those of the junior class, and the major and captains from those of the senior class, who have passed through the lower grades satisfactorily.

A special military scholarship, good for one year, is open to each student who attains the grade of a commissioned officer, the value of which is paid the holder at the close of the year.

An artillery detachment is organized mainly from the second year, or sophomore, class, which receives practical instruction twice each week during the college year.

Toward the close of the year, a committee appointed by the Faculty examines candidates for nomination to the Governor of the state to receive commissions as brevet captains in the state militia. Candidates must be members of the senior class in full standing at the time of this examination; must have completed the course of military studies; must have served three terms as captains or lieutenants, and must be approved by the Faculty as having good reputations as scholars, officers, and gentlemen.

Under the authority of the acts of incorporation, the Trustees have prescribed a uniform of cadet gray, coat trimmed with black mohair braid, trousers with black cloth stripe, cut after the U. S. army pattern. The uniform of the cadet officers is of dark blue cloth for coat and light blue for trousers; cap, for all, of dark blue cloth, army pattern, with university badge embroidered thereon in gold bullion; white gloves; the uniform of the band dark blue throughout, with special trimmings.

In order that all uniforms worn at this University may be, in quality, make, and finish in strict accordance with the specifications adopted by the Board of Trustees, all

students enrolled in the military department will be required to obtain them from that firm only that may, for the time being, be under agreement and bond with the Trustees to furnish said uniforms at a stated price and of standard quality.

The University Cornet Band is composed of students, and every full term of service therein is counted as one term of drill.

PHYSICAL TRAINING FOR MEN

The main object of the work of this department is to preserve the bodily health of the students by careful physical examinations, and rational prescriptions of exercises; by correcting physical deformities, and imperfect development; by teaching proper methods of living; and by encouraging proper intercollegiate sports.

Each student is required to undergo a physical examination so that a correct knowledge of his bodily condition may be obtained, and proper exercises prescribed. Regular classes are formed for drill on the various gymnasium appliances. Lectures are given upon personal hygiene.

All competitive athletic games are under the direct supervision of the professor of physical training, and his medical examination is required to show that membership on any team will tend to improve the physical condition, and not cause injury.

Two courses are offered to those who wish to prepare as instructors of physical training or coaches of athletic teams.

FOR WOMEN

Each student who takes physical instruction is expected to undergo a physical examination every year, in order that her physical condition may be known and suitable exercises and advice given. Systematic class work is given in the use of dumb-bells, wands, bar-bells, foils, Indian clubs, and on many pieces of gymnastic apparatus.

Throughout the fall and spring out-door games and

exercises receive considerable attention. Lectures and talks on hygiene, physical training, etc., are given during the winter.

Each student comes under the personal observation of the director and is given exercises to meet her special needs.

Every woman student not physically disqualified must take the prescribed work and may elect enough to make seven hours of credit.

The women's gymnasium occupies very attractive quarters in Natural History Hall, and is well equipped. The pastime grounds near by, in use through the year, when the weather permits, have a sixteen-lap running track, eight tennis courts, two basket ball fields, and space for hurdling, handball, and other suitable amusements.

The gymnasium is open for exercise, at certain hours, under suitable restrictions, to those who are not enrolled in classes.

EXPENSES

BOARD

The University does not furnish board, but there is a large number of suitable private places in Urbana and Champaign, within walking distance of the University, and easily accessible by electric railway, where students can obtain table board and rooms. There are several students' clubs at which the cost of meals is about two and a half dollars a week.

The Business Manager and the Young Men's and Young Women's Christian Associations of the University will aid new students in procuring rooms and boarding places.

FEES

Technological, Scientific, Agricultural, and Literary Departments.

MATRICULATION FEE. Each student not holding a scholarship, upon satisfying the requirements for admission to the University, pays the matriculation fee of................ $10 00

THE DIPLOMA FEE, payable before graduation, is............. 5 00

THE INCIDENTAL FEE. All students, except those in the Graduate School, pay, each semester, an incidental fee of. 12 00

TUITION FEE. Students "conditioned" on entrance requirements and "Special" students (see p. 51) pay, each semester, a tuition fee of.............................. 7 50

LABORATORY FEES AND DEPOSITS. Each student working in laboratories, or in the drafting or engineering classes, is required to make a deposit varying from 50 cents to $10.00, to pay for chemicals and apparatus used, and for any breakages or damages.

The deposit for Library School supplies is $20.00 for the junior year, and $10.00 for the senior year.

Music Department

Students who are candidates for a degree in the music department pay the matriculation fee of	$10 00
Students in the music department taking studies in other departments of the University pay the "incidental" fee each semester	12 00
They also, if not matriculated, pay, each semester, the tuition fee of	7 50

Students not enrolled in other departments, and so not paying the "incidental" fee, pay special music fees as follows:

Piano, organ, or voice, two lessons a week, each semester	$ 32 50
Same, one lesson a week	19 50
Violin or other stringed instrument, two lessons a week, each semester	26 50
Same, one lesson a week	14 50
These students may enter classes in Physical Training (see p. 236) on paying, each semester	5 00

Students regularly enrolled and paying the "incidental" fee in other departments pay music fees as follows:

Piano, organ, or voice, two lessons a week, each semester	$ 25 00
Same, one lesson a week	15 00
Violin or other stringed instrument, two lessons a week	19 00
Same, one lesson a week	10 50

All students in harmony, counterpoint, fugue, etc., in classes not to exceed four, pay each semester	9 00

No deduction is made on account of absence in any course, except in case of protracted illness.

Students can rent pianos for practice by applying to the head of the music department.

Law School

Students of the Law School, upon satisfying the requirements for admission, pay the matriculation fee of	$ 10 00
Tuition fee, each semester	25 00
Students conditioned on entrance requirements pay, each semester, an additional fee of	5 00

School of Medicine

Matriculation fee, paid each year	$ 5 00
General ticket, each year	105 00
Winter Term—	
Laboratory Deposit (for material and breakages, balance returned)	25 00
Matriculation fee, good for the year	5 00
Spring Term—	
General ticket	20 00
Laboratory deposit	10 00

School of Pharmacy

Tuition fee, each year	$75 00
Laboratory deposit, each year	5 00

Preparatory School

All pupils in the Preparatory School pay, each semester, an "incidental" fee of	$12 00
Also a tuition fee of	7 50

ALL BILLS due the University *must be paid within ten days after the student enters classes.*

NECESSARY EXPENSES

The following are, for students attending at Urbana, estimated average annual expenses, exclusive of books, clothing, railroad fare, laboratory fees, if any, and small miscellaneous needs:

*Term fees	$24 00	to	$24 00
Room rent for each student (two in room)	23 00	"	50 00
Table board in boarding houses and clubs	90 00	"	126 00
Fuel and light	10 00	"	15 00
Washing	12 00	"	18 00
Total	$159 00	to	$233 00
Board and room in private houses, per week	4 00	"	6 00

CAUTION TO PARENTS—STUDENTS' FUNDS

The Business Manager will receive on deposit any funds

*Students of law and music, and pupils of the Preparatory School, must make needed changes in the amount given for "Term fees."

parents may entrust to him to meet the expenses of their sons and daughters. No greater error can be committed than to send young people from home with large amounts of spending money, and without the authoritative care of some prudent friend. Half the dissipation in colleges springs from excessive allowances of money.

PREPARATORY SCHOOL

INSTRUCTORS

EDWARD G. HOWE, B. S., Principal, Natural Science.
LILLIE ADELLE CLENDENIN, English.
REUBEN S DOUGLASS, A. B., Geometry and Physics.
CHARLES B. RANDOLPH, A. B., Latin and Greek.
CLARENCE W. ALVORD, A. B., History and Algebra.

This school offers special advantages to young men and women who, on account of advanced age or prolonged absence from school, are out of touch with the high school.

ADMISSION

Candidates for admission must be at least fifteen years of age. Those of age may enter such classes as they are prepared for without examination. All under twenty-one years of age, except those coming from accredited schools (see p. 37), must pass a satisfactory examination in the following subjects:

1. ARITHMETIC.—A thorough knowledge is required of fundamental operations, simple and denominate numbers, the metric system of weights and measures, common and decimal fractions, practical measurements, percentage, ratio and proportion.

2. ENGLISH.—The examination is intended to test the student's vocabulary, and his knowledge of grammar.

3. GEOGRAPHY.—An accurate knowledge of physical configuration, political divisions, and important centers of population, is required.

4. HISTORY.—As a foundation in this subject, a knowledge of the early settlement of North America, and of the growth and

development of the United States, is required. A knowledge of the nature and operation of the forces active in American life is desired, rather than the memorization of isolated dates and names.

ENTRANCE should be made at the opening of a semester. Examinations are held in the rooms of the school. For the first semester, 1899-1900, these examinations occur on Thursday, Friday, Saturday, and Monday, the 14th, 15th, 16th, and 18th of September; for the second semester Friday and Saturday, February 2 and 3, 1900. Examinations on these dates are free, but for examinations at other times a fee of three dollars is charged.

EXAMINATIONS may be conducted in Illinois by county superintendents of schools in the same manner as for teachers' certificates, and their favorable reports will be accepted for entrance. First or second grade teachers' certificates from superintendents of Illinois will be taken for the same purpose.

ADMISSION FROM ACCREDITED SCHOOLS. On the written recommendation of their principals, students from the accredited schools of the University may be admitted without entrance examinations and credit will be allowed for all equivalent work already done. Blanks for such recommendations will be sent on application.

COURSE OF STUDY

The time necessary for the completion of the course is not fixed, but depends on the ability and previous training of the student. Applicants will be admitted at any time on presenting proof that they are prepared to pursue the selected subjects. Preparatory students generally carry four studies, one of which should be such as needs but little work outside of the class room. The number varies, however, with the ability of the student and the nature of the course.

The following schedule gives the subjects in which instruction can be had and the term or terms in which they are taught:

SCHEDULE OF STUDIES

SUBJECT	FIRST SEMESTER	SECOND SEMESTER
Algebra*	To Involution.	Through quadratics.
Botany		Second semester.
Composition and Rhetoric.	Advanced grammar. Composition and reading through the year.	Rhetoric.
English Literature.	Literature. Themes and reading through the year.	
Drawing	Either semester.	
French	Three semesters.	Begin in second.
German	Three semesters.	Begin in second.
Latin, first year	Beginners' book.	Reader and Cæsar.
Latin, second year	Cæsar and Sallust.	Cicero.
Latin, third year	Cicero and Vergil.	
Greek, first year	Grammar, readings, composition and Anabasis.	
Greek, second year	Anabasis, Hellenica, Herodotus, composition and grammar.	
Geometry	Plane and solid, both begin each semester.	
History	English and American, through one year.	
Physics	After holiday recess.	
Physiology	To holiday recess.	
Zoölogy	First semester.	

Students, in choosing studies from the above list, must take them in the required sequence.

COURSES OF INSTRUCTION

ALGEBRA

Rapidity and accuracy in all operations is rigidly required. Special emphasis is laid upon the use of purely literal expressions, radicals, fractional and negative exponents, and upon the fundamental nature of the equation.

* If five or more apply, a class will *review* the entire subject in the first semester.

BOTANY

This is a study of plants rather than of books about plants, although books are not disregarded. It is an introduction to the science, and is intended to give an acquaintance with the chief features of the subject. The analysis of simple flowers and the preparation of a small herbarium of correctly named and properly mounted plants is required. *Bergen's Elements of Botany.*

ENGLISH

The subject is presented in such a way as to increase the student's vocabulary and to develop elegance and exactness of expression in his composition. Advanced grammar and rhetoric are taught in connection with this work. The study of literary masterpieces is also pursued to furnish material for the weekly written exercises, and to cultivate a taste for good literature. Considerable collateral reading in English and American authors is therefore required.

FREE-HAND DRAWING

This subject is best taken in the first semester in order that pupils may have the benefit of its training in the studies which follow. *Frederick's Notes on Free-Hand Drawing.*

FRENCH

The work in this subject will be the same as that indicated under entrance requirements, p. 47.

GERMAN

COURSE A.—Beginning work, Joynes-Meissner's Grammar and a German reader. Second semester at 1:20.

COURSE B.—Advanced course. Joynes-Meissner's Grammar, Harris's Prose Composition and translation of narrative prose. First and second semesters at 11.

Required: German A or one year of high school work.

GEOMETRY

Special attention is paid to the development of the idea of mathematical demonstration; and, as many students who can reason logically cannot express their ideas clearly, due attention is paid to correctness of form. As soon as the student has attained the art of rigorous demonstration he is required to produce constructions and demonstrations for himself. Considerable attention is devoted to original work. *Wentworth's Plane and Solid Geometry.*

GREEK

The study of this subject should, when possible, be preceded by at least one year of Latin. For particulars see entrance requirements, p. 48.

HISTORY

Instruction in this subject is confined to English and American history. A detailed study of the rise and progress of the English-speaking people in England and America is made, and considerable attention is given to the origin and development of representative government. *Green's Shorter History of the English People; Fiske's History of the United States, and Civil Government.*

LATIN

The ground covered consists of the grammar and selections from Cæsar, Sallust, Cicero, and Vergil. Translation of English into Latin is made a prominent part of the work, and in connection with the Vergil the scansion of hexameter verse and matters of historical and mythological interest are studied. The Roman method of pronunciation is used, with special attention to quantity.

PHYSICS

This study is so presented as to cultivate habits of careful observation, and to develop in the student the ability to reach general conclusions inductively by means of exact experiment. In all laboratory work the student is required to keep a note-book containing a complete record of experiments performed.

PHYSICAL TRAINING

Preparatory students may have the benefit of a thorough physical examination and regular exercise, under the guidance of University instructors, but not for either entrance or University credits.

PHYSIOLOGY

In this subject the book used is illustrated by the use of charts, skeleton, and manikin, and by a series of laboratory experiments. *Colton's Physiology.*

ZOÖLOGY

Through the study of typical animals the subject is so presented as to lead the student to a knowledge of methods of scientific classification in the natural sciences, and to prepare for the more advanced work of the University. Kingsley's Comparative Zoölogy and collateral reading.

REGULATIONS

Reports regarding all non-resident and minor students (and, upon request, regarding any others) are sent to parents or guardians as soon as students are settled in their work, and reports regarding all students are sent at the close of each term.

The calendar of the Preparatory School is the same as that of the University.

For information concerning fees and expenses, see page 267.

For special information with regard to the Preparatory School, address Edward G. Howe, Urbana, Illinois.

LIST OF STUDENTS

TECHNOLOGICAL, SCIENTIFIC, AGRICULTURAL, AND LITERARY DEPARTMENTS

GRADUATE SCHOOL

Alvord, Clarence Walworth, A.B., *(Williams College)*, 1891, *Champaign,* History and Philosophy.

*Barclay, Thomas, B.S., 1891, *Aurora,* Smelting and Refining Processes of the United States; Geology of Ore Deposits.

Beasley, D. Edythe, A.B., 1898, *Urbana,* Classical.

Black, William Wesley, A.B., 1898, *Champaign,* Pedagogy.

Boggs, Cassandra Armstrong, B.L., 1892, *Urbana,* English and Pedagogy.

Braucher, Ralph Waldo, B.S., 1897, *Lincoln,* Zoölogy and Horticulture.

Brenke, William Charles, B.S., 1896, *Urbana,* Astronomy and Mathematics.

*Burt, Henry Jackson, B.S., 1896, *Wall Lake, Ia.,* Civil Engineering.

Carpenter, Hubert Vinton, B.S., 1897, *Champaign,* Mathematics and Physics.

Carson, Lucy Hamilton, Ph.B., *(Univ. of Chicago)*, 1898, *Bluff Springs,* English.

Coffeen, Harry Clay, B.S., 1898, *Champaign,* Astronomy and Mathematics.

Connet, Ella, M.L., 1894, *Champaign,* Pedagogy.

Craig, Wallace, B.S., 1898, *Havana,* Zoölogy.

Dewey, Louise Sarah, B.S., 1897, *Urbana,* Physiology.

Dillon, William Wagner, A.B., 1898, *Sheldon,* History and Economics.

*Eckles, Harry Edward, B.S., 1898, *Chicago,* Civil Engineering.

*Fischer, Louis Englemann, B.S., 1898, *Paris,* Municipal and Sanitary Engineering.

Fraser, Wilber John, B.S., 1893, *Champaign,* Agriculture.

*Gardner, Frank Duane, B.S., 1891, *Washington, D. C.,* Agriculture.

Grimes, George Lyman, B.S., 1897, *Ann Arbor, Mich.,* Mechanical Engineering.

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* *In absentia,* see p. 250.

*Hallinen, Joseph Edward, B.S., 1894, *Ottawa,* Zoölogy and Pedagogy.

Heller, Opal, B.L., 1891, *Urbana,* English and Pedagogy.

*Honens, Fred William, B.S., 1896, *Sterling,* Civil Engineering.

Hubbard, George David, M.S., 1898, *Urbana,* Paleontology, Zoölogy, and Entomology.

*Ketchum, Milo Smith, B.S., 1895, *Houghton, Mich.,* Civil Engineering.

*Ketchum, Richard Bird, B.S., 1896, *Chicago,* Civil Engineering.

*Kimball, William Haven, B.S., 1895, *San Francisco,* Electrical Engineering.

Kofoid, Mrs. Prudence Winter, A.B., *(Oberlin College),* 1890, *Urbana,* History.

*Lampe, Margaret Henrietta Johanne, A.B., 1897, *Bloomington,* German.

*Linn, Homer Roberts, B.S., 1896, *Cleveland, Ohio,* Mechanical Engineering.

McCormack, Harry, B.S., *(Drake Univ.),* 1896, *Koshkonong, Mo.,* Chemistry.

Marble, Harry Curtiss, B.S., 1896, *Champaign,* Electrical Engineering.

*Martin, James Madison, A.B., 1896, *Pana,* Pedagogy, Sociology, and Psychology.

*Millar, Adam Vause, B.S., 1897, *Champaign,* Mathematics and Astronomy.

Neureuther, Andrew Henry, B.S., 1898, *Peru,* Mechanical Engineering.

*Nevins, John, B.S., 1898, *Camp Point,* Architecture.

*Newell, Mason Harder, *Springfield,* Public Law and Administration.

*Parr, John Louis, B.S., 1897, *Peoria,* Architecture.

Quaintance, Hadly Winfield, A.B., *(Univ. of Neb.),* 1896, *Cable,* Economics and History.

Randolph, Charles Brewster, A.B., *(Wabash College),* 1896, *Urbana,* Spanish.

*Richart, Frederick William, B.S., 1891, *Collinsville,* Mechanical Engineering.

Rose, Carlton Raymond, Ph.M., *(Univ. of Mich.),* 1896, *Champaign,* Chemistry.

Sammis, John Langley, B.S., 1897, *Champaign,* Chemistry.

*Sayers, Albert Jefferson, B.S., 1895, *Chicago,* Mechanical Engineering.

**In absentia*, see p. 250.

Shamel, Archibald Dixon, B.S., 1898, *Taylorville,* Agriculture.
Smith, Louie Henrie, B.S., *Crystal Lake,* Chemistry.
*Sweney, Don, B.S., 1896, *Champaign,* Mechanical Engineering.
Sy, Albert Philip, B.S., 1894, *Altamont,* Chemistry.
*Teeple, Wallace Douglas, B.S., 1897, *Marengo,* Architecture.
*Tower, Willis Eugene, B.S., 1894, *Chana,* Physics.
*Unzicker, William Luther, A.B., 1898, *Hopedale,* Latin.
Waits, Charles Jefferson, A.B., *(Indiana Univ.)*, 1894, *Carlisle, Ind.,* Pedagogy.
*Wallace, Herbert Milford, A.B., 1897, *Seattle, Wash.,* Economics.
Walter, Charles Albert, B.S., Ph.C., 1898, *Indianapolis, Ind.,* The Quantitative Estimation of the Active Medicinal Principles of Plants.
Ward, Mrs. Velma Skinner, B.L., 1877, *Champaign,* English.
*Webber, Hubert Anthony, B.S., 1897, *Kankakee,* Architecture.
*Williamson, Albert St. John, B.S., 1898, *Quincy,* Mechanical Engineering.
Worthen, George Bedell, LL.B., 1898, *St. Louis,* Law.

SENIORS

[In the lists which follow, "L. and A.' stands for College of Literature and Arts; "S." for College of Science.]

Anderson, Harry,	*Sheldon,*	Electrical Eng'g.
Armstrong, Frank Hall,	*Serena,*	Mechanical Eng'g.
Bayard, Samuel Michael,	*Vincennes, Ind.*	General, L. and A.
Beckerleg, Gwavas Foster,	*Chicago,*	Civil Engineering.
Bennett, Ralph,	*Chicago,*	Electrical Eng'g.
Bennett, Ruth,	*Chicago,*	General, L. and A.
Bigelow, Mary Constance,	*Champaign,*	Math., L. and A.
Bocock, Clarence Edgar,	*Bradford,*	General, L. and A.
Booker, Lucile Alice,	*Champaign,*	General, L. and A.
Bradley, James Clifford,	*Morrison,*	Mechanical Eng'g.
Branch, Elizabeth,	*Champaign,*	Library.
Burkland, Theodore Leonard,	*Moline,*	Civil Engineering.
Burroughs, Elmer,	*Savoy,*	Electrical Eng'g.
Busey, Robert Oscar,	*Urbana,*	General, L. and A.
Chipps, Halbert Lilly,	*Sullivan,*	Civil Engineering.
Chuse, Harry Arthur,	*Mattoon,*	Mechanical Eng'g.
Clark, Edith,	*Vandalia,*	General, L. and A.

* *In absentia*, see p. 250.

Clark, Mary Edith,	*Champaign,*	Classical.
Clark, Philip Henry,	*Galena,*	General, L. and A.
Clifford, Charles Luther,	*Serena,*	Electrical Eng'g.
Cooke, Jane Elizabeth,	*Monroe, Mich.,*	Library.
Detrick, Nellie Elizabeth,	*Champaign,*	General, L. and A.
Dill, William,	*Little Rock, Ark.,*	Architecture.
Dinwiddie, Virginia,	*Champaign,*	Natural Science.
Dodds, George,	*Neoga,*	Electrical Eng'g.
DuBois, Alexander Dawes,	*Springfield,*	Electrical Eng'g.
Eastman, Harry Truxtun,	*Rock Island,*	Architecture.
Ely, Howard Montgomery,	*Peoria,*	Mechanical Eng'g.
Fairchild, Edna,	*Toledo, Ohio,*	Library.
Fleager, Clarence Earl,	*Sheldon,*	Electrical Eng'g.
Flesch, Eugene William Penn,	*Chicago,*	Architecture.
Foberg, John Albert,	*Chicago,*	Math. and Physics.
Fowler, Robert Lambert,	*Salt Lake City, Utah,*	Civil Eng'g.
Fraser, William Alexander,	*La Salle,*	Mechanical Eng'g.
Garver, Daisy,	*Bloomington,*	Classical.
Gerber, Winifred Dean,	*Rockford,*	Municipal Eng'g.
Gilchrist, Hugh McWhurr,	*Gilchrist,*	Electrical Eng'g.
Graham, George Woods,	*Freeport,*	Civil Engineering.
Griffin, Walter B,	*Elmhurst,*	Architecture.
Grim, Fred,	*Canton,*	Civil Engineering.
Hall, Louis Dixon,	*Hawarden, Iowa,*	Agriculture.
Haseltine, Warren Edmund,	*Aurora,*	Chemistry.
Herwig, John Newton,	*Mason City,*	Mechanical Eng'g.
Hill, Irwyn Horatio,	*Joliet,*	Architecture.
Hoagland, John King,	*Herborn,*	Agriculture.
Hubbard, George Wallace,	*Urbana,*	Mechanical Eng'g.
Hughston, Allie Dellena,	*Urbana,*	Natural Science.
Husk, Frederick William,	*Shabbona,*	Electrical Eng'g.
James, Frederick Milton,	*Piasa,*	Natural Science.
Jones, Louise,	Champaign,	General, L. and A.
Jutton, Emma Reed,	*Champaign,*	Library.
Kable, James Franklin,	*Virden,*	Architectural Eng'g.
Ketchum, Daniel Clement,	*Champaign,*	Political Science.
Koch, Fritz Conrad,	*Elmhurst,*	Chemistry.
Landel, Ida Susan,	*Champaign,*	General, L. and A.
Latzer, John Albert,	*Highland,*	Agriculture.
Lawrence, Carroll Gray,	*Carbondale,*	Architecture.
Leach, William Blake,	*McLean,*	Eng. and Mod. Lang.

Leutwiler, Oscar Adolph,	*Highland,*	Mechanical Eng'g.
Loftus, Ella,	*Champaign,*	General, L. and A.
McElfresh, Fred Morgan,	*Jacksonville,*	Natural Science.
McGilvrey, Mrs. Mary,	*Urbana,*	General, L. and A.
Meharry, Jesse Erle,	*Tolono,*	Political Science.
Mercil, Benoni Edward,	*Chicago,*	Electrical Eng'g.
Mesiroff, Josef,	*Chicago,*	Electrical Eng'g.
Montross, Sarah Elizabeth,	*Chicago,*	Library.
Newell, Mason Harder,	*Springfield,*	General, L. and A.
Nilsson, Olaf Anton,	*Urbana,*	Architectural Eng'g.
Null, Marion Michael,	*Blandinsville,*	Natural Science.
Olson, Joseph Matthias,	*Ottawa,*	General, L. and A.
Owens, Dasie Margaret,	*Urbana,*	Natural Science.
Paine, Arthur Elijah,	*Rosemond,*	General, L. and A.
Parham, Nellie E,	*Lima, Ind.,*	Library.
Paul, Wesley Arthur,	*Peoria,*	Natural Science.
Porter, Horace Chamberlain, A.B., 1897.	*Champaign,*	Chemistry.
Postel, Fred Jacob,	*Mascoutah,*	Electrical Eng'g.
Putnam, Alice,	*Chicago,*	Music.
Railsback, Roy J,	*Hopedale,*	General, L. and A.
Rapp, George Leslie,	*Carbondale,*	Architecture.
Raymond, Ruth Cleveland,	*Sidney,*	General, L. and A.
Reat, Fred Lee,	*Tuscola,*	General, L. and A.
Rhoads, Emma May,	*Champaign.*	Eng. and Mod. Lang.
Rhoads, Horace Adams,	*Champaign,*	General, L. and A.
Ritchey, Felix,	*Cadwell,*	General, L. and A.
Rudnick, Paul Frederick Augustus,	*Chicago,*	Chemistry.
Rugg, Elma Almira, A.B. *(Portland Univ.),* 1898,	*Urbana,*	General, L. and A.
Schutt, Walter Robert,	*Belleville,*	Ger. and Romanic Lang.
Seely, Garrett Teller,	*Oswego,*	Civil Engineering.
Shawhan, Gertrude, B.L., 1894,	*Champaign,*	Library.
Sheean, Frank Thomas,	*Galena,*	General, L. and A.
Sheean, Henry David,	*Galena,*	General, L. and A.
Sheldon, Carl Edmunds,	*Sterling,*	General, L. and A.
Smith, Charles Augustus,	*Mattoon,*	Architecture.
Smith, Elmer Church,	*Columbus, Neb.,*	Civil Eng'g.
Smith, Florence Mary,	*Urbana,*	Classical.
Smoot, Elma,	*Danville,*	General, L. and A.
Smurr, Thomas Woods,	*Ottawa,*	General, L. and A.

Sparks, Marion Emeline, A.B., 1895.	*Urbana,*	Library.
Staley, Maggie Edith,	*Urbana,*	General, L. and A.
Streight, Laura Allana,	*Franklinville, N. Y.,*	Library.
Swenson, Sidney Orin,	*Chicago,*	Electrical Eng'g.
Tarrant, William Henry,	*Champaign,*	Civil Engineering.
Tebbetts, George Edward,	*Chicago,*	Civil Engineering
Theiss, Otto John,	*Sublette,*	Civil Engineering.
Thompson, Ralph,	*Carbondale,*	General, L. and A.
Ullensvang, Martin L,	*Steward,*	Natural Science.
Vance, William Herbert,	*Edwardsville,*	Civil Engineering.
Vial, Alice Mildred,	*Western Springs,*	General, L. and A.
Volk, Edmund,	*Mendota,*	Electrical Eng'g.
Waters, Willard Otis, A.B. *(Benzonia Coll.)*, 1896,	*Benzonia, Mich.,*	Library.
Weaver, Ben: Perley,	*Urbana,*	Natural Science.
Webster, William W,	*Urbana,*	Mechanical Eng'g.
Weirick, Ralph Wilson,	*Washington,*	Architecture.
Wernham, James Ingersoll,	*Marengo,*	Natural Science.
Whitmeyer, Mark Hubert,	*Danville,*	Architecture.
Willcox, Maurice Meacham,	*Elmore,*	Civil Engineering.
Wilmarth, George Henry,	*Aurora,*	Electrical Eng'g.
Woolsey, Lulu Catherine,	*Polo,*	Political Science.
Young, Bertram Otho,	*LeRoy,*	Natural Science.

JUNIORS

Alarcó, Joseph Maria,	*Valencia, Spain,*	Electrical Eng'g.
Ambler, Sarah, M.S. *(Iowa Wesleyan)*, 1885,	*Mt. Pleasant, Iowa,*	Library.
Appelquist, Jerome Gustav,	*Orion,*	Civil Engineering.
Ashley, Harriet Elizabeth,	*Urbana,*	General, L. and A.
Beach, Wilfred Warren,	*Sioux City, Iowa,*	Architecture.
Bear, Katharine W,	*Ludlow,*	Natural Science.
Beck, Florence Maria,	*Platteville, Wis.,*	Library
Bennett, Edith Page,	*Mattoon,*	Classical
Bevans, Thomas Murray,	*Chicago,*	Electrical Eng'g.
Bixby, Alice Persis,	*Champaign,*	Library.
Bracken, Ellis Freeman,	*Greenview,*	Electrical Eng'g.
von Briesen, Julia Henrietta,	*Columbus, Wis.,*	Library.
Brown, William Jay,	*Urbana,*	Architecture.
Bryant, Ralph Clement,	*Princeton,*	Natural Science.

Burke, Eugene,	*Champaign,*	Philosophy, S.
Bush, John Kenyon,	*Joliet,*	General, L. and A.
Caldwell, Charlotte Jane, A.B. *(Ohio Female Coll)*, 1856,	*Cincinnati, Ohio,*	Library.
Calhoun, Henrietta Anne,	*Champaign,*	Natural Science.
Campbell, Bruce Alexander,	*Albion,*	General, L. and A.
Capron, Clyde,	*Marion,*	Political Science.
Carey, Miriam Eliza,	*Freeport,*	Library.
Church, Walter Samuel,	*Chicago,*	Architecture.
Clatworthy, Linda Marie,	*Evanston,*	Library.
Darmer, George Alexander,	*Champaign,*	General, L. and A.
Dobbins, Lester Charles,	*Champaign,*	Political Science.
Dowiatt, Stanislav,	*Chicago,*	Mechanical Eng'g.
East, Edward Murray,	*DuQuoin,*	Chemistry.
Eddy, Clarence LeRoy,	*Weldon, Iowa,*	Civil Engineering.
Few, Walter Henderson,	*Delavan,*	Electrical Eng'g.
Fisher, John William,	*Orangeville,*	Natural Science.
Foster, William Grant,	*Urbana,*	Architecture.
Fox, Harry Bert,	*Urbana,*	Natural Science.
Francis, Frank D,	*New Lenox,*	General, L. and A.
Freeman, Harry Eben,	*Millington,*	Natural Science.
Gernand, William Isaac,	*Rossville,*	Electrical Eng'g.
Goodman, Ella,	*Chicago,*	Library.
Graham, Hugh Joseph,	*Springfield,*	General, L. and A.
Gray, Robert,	*Lily Lake,*	Electrical Eng'g.
Gunthorp, Pauline, B.L. *(Univ. of Wis.)*, 1898,	*Austin,*	Library.
Hanson, Rachelle Margaret,	*Urbana,*	Natural Science.
Harker, George Mifflin,	*Carbondale,*	General, L. and A.
Harker, Oliver Albert, Jr.,	*Carbondale,*	General, L. and A.
Harrower, John Charles,	*Barrington,*	Mechanical Eng'g.
Hartrick, Dinchen Clara,	*Urbana,*	General, L. and A.
Hartrick, Louis Eugene,	*Urbana,*	Natural Science.
Hartrick, Nancy Emma,	*Urbana,*	General, L. and A.
Harts, David Hassleton, Jr.,	*Lincoln,*	General, L. and A.
Hasson, Harry,	*Lewistown,*	Chemistry.
Haven, Georgetta,	*Cincinnati, Ohio,*	Library.
Hawley, William Albert,	*Dundee,*	Civil Engineering.
Hines, Edward George,	*Huey,*	Architecture.
Holabird, Robert Grant,	*Evanston,*	Architectural Eng'g.
Jackman, Ida Louise,	*Elgin,*	Library.

Jahr, Torstein, A.B. *(Norwegian Luth. Coll.)*, 1896,	*Chicago,*	Library.
Johnson, Charles Sunderland,	*Champaign,*	Mechanical Eng'g.
Johnston, Arthur Russell,	*Joliet,*	Chemistry.
Jones, Albert Edward,	*Lena,*	General, L. and A.
Jordan, George Thomas,	*Tolono,*	General, L. and A.
Keeney, Harry Ezra,	*Sterling,*	Mechanical Eng'g.
Kepler, George Frank,	*Ashtabula, Ohio,*	Architecture.
Kingsbury, James Thompson,	*Pinkstaff,*	General, L. and A.
Kirkpatrick, Asa Baird,	*Elmwood,*	Natural Science.
Kratz, James Piatt,	*Monticello,*	General, L. and A.
Kreikenbaum, Charles Otto Adolph,	*Chicago,*	Chemistry.
Kuehn, Alfred,	*Chicago,*	Civil Engineering.
Lathrop, Olive Clarice,	*Hastings, Mich.,*	Library.
Latzer, Jennie Mary,	*Highland,*	Natural Science.
Lee, Julian Liechaski,	*Memphis, Tenn.,*	Mech. Eng'g.
Logue, Charles Louis,	*Danville,*	Chemistry.
McMurry, Fred Russell,	*Normal,*	General, L. and A.
McWilliams, Nellie Louise,	*Champaign,*	General, L. and A.
Martin, Robert William,	*Wilmington,*	Political Science.
Mather, Lydia Maria,	*Joliet,*	Latin.
Maury, Harvey,	*Rossville,*	Civil Engineering.
Mayall, Edwin Lyman,	*Peoria,*	Mechanical Eng'g.
Merrill, Stillwell Frederick,	*Collinsville,*	Chemistry.
Mills, Ralph Walter,	*Webster Groves, Mo.,*	Nat. Science.
Miner, Timothy Ralph,	*Adair,*	Agriculture.
Norton, Wilbur Perry,	*Alton,*	Electrical Eng'g.
Otwell, Allen Meade,	*Plainview,*	Natural Science.
Owens, Wilkens Hoover,	*Baltimore, Md.,*	Natural Science.
Palmer, William Gay,	*Princeton,*	General, L. and A.
Pettinger, Robert Gerald,	*Cumberland, Ia.,*	Electrical Eng'g.
Phelps, Clara B,	*Pontiac, Mich.,*	Library.
Phillips, Theodore Clifford,	*Mt. Carroll,*	Municipal Eng'g.
Ponzer, Ernest William,	*Henry,*	Math. and Physics.
Posey, Chessley Justin,	*Normal,*	Natural Science.
Price, Anna May,	*Fairbury, Neb.,*	Library.
Price, Helen Louise,	*Champaign,*	Library.
Quisenberry, Arthur Clifford,	*Lincoln,*	General, L. and A.
Radley, Guy Richardson,	*Sandwich,*	Electrical Eng'g.
Raymond, John Eaton,	*Sidney,*	Agriculture.
Reardon, Neal Daniel,	*Boynton,*	Political Science.

Reimers, Fred William,	*Evanston,*	Electrical Eng'g.
Ricker, Raymond Craver,	*Harvey,*	Architecture.
Robbins, Ernest Thompson,	*Payson,*	Agriculture.
Robertson, Lloyd Silas,	*Barrington,*	Agriculture.
Rochow, Carl John Frederick,	*Rock Island,*	Natural Science.
Rolfe, Martha Deette,	*Champaign,*	Natural Science.
Safford, Edward Brigham,	*Sycamore,*	Chemistry.
Sanford, Delia Clara,	*Platteville, Wis.,*	Library.
Sawyer, Ida Estelle, Ph.B. *(Northwestern Univ.),* 1896,	*Evanston,*	Library.
Schneider, Edward John,	*Pontiac,*	Municipal Eng'g.
Sears, Minnie Earl, M.S. *(Purdue),* 1894,	*La Fayette, Ind.,*	Library.
Seely, Blanche, B.L. *(Univ. of Minn.),* 1896,	*Minneapolis, Minn.,*	Library.
Shrum, Mabel Claire,	*La Junta, Col.,*	Library.
Simpson, Frances, M.L. *(Northwestern Univ.),* 1898,	*Evanston,*	Library.
Slocum, Roy Harley,	*Loda,*	Civil Engineering.
Smith, George Russell,	*Urbana,*	Mechanical Eng'g.
Smith, William Walter,	*Broadlands,*	Ger. and Romanic Lang.
Soverhill, Harvey Allen,	*Tiskilwa,*	Mechanical Eng'g.
Stakemiller, Benjamin Benton,	*Sterling,*	Civil Engineering.
Strohm, Adam Julius,	*Urbana,*	Library.
Strout, Frank Asbury,	*Joliet,*	Mechanical Eng'g.
Taft, Frank Harvey,	*Champaign,*	Mechanical Eng'g.
Temple, Harry Roberts,	*Elida,*	Architecture.
Thompson, George Henry,	*Champaign,*	Political Science.
Thorpe, John Charles,	*Urbana,*	Mechanical Eng'g.
Turner, Dollie Irene,	*Long View,*	General, L. and A.
Tyler, Walter Simeon,	*Joliet,*	Electrical Eng'g.
VanPatten, Seth Fields,	*Clarion, Iowa,*	General, L. and A.
Waldo, Marie L,	*Champaign,*	Natural Science.
Walker, Herbert William,	*Dundee,*	Electrical Eng'g.
Wandell, Caroline,	*Phoenix, N. Y.,*	Library.
Wehrstedt, Otto Charles,	*Evanston,*	Civil Engineering.
West, Maybelle Gay, B.L. *(Knox Coll.),* 1894,	*Galesburg,*	Library.
Wiley, Raymond Sly,	*Belleflower,*	Architecture.
Willcox, Lucy Bertha Ely,	*Chicago,*	Library.
Williams, George Bassett,	*Washington, D. C.,*	Arch. Eng'g.

Wood, Harvey Edgerton,	*Joliet,*	Chemistry.
Woods, William Francis,	*Ludlow,*	General, L. and A.
Wray, Thomas,	*Chicago,*	Electrical Eng'g.

SOPHOMORES

Allen, Albert Miller,	*Oberlin, Ohio,*	Architecture.
Allen, Frank Gilbert,	*Rock Island,*	Electrical Eng'g.
Allen, John L,	*Roodhouse,*	Electrical Eng'g.
Applegate, Alpheus Miller,	*Atlanta,*	Music.
Armitage, James Howard,	*Buckingham,*	Classical.
Arps, George Frederick,	*Carey,*	Natural Science.
Atwood, John Roy,	*Roscoe,*	Agriculture.
Bailey, Donald Herbert,	*Clinton,*	General, L. and A.
Baker, Horatio Weber,	*Champaign,*	Civil Engineering.
Baldwin, Aneta,	*Paris,*	General, L. and A.
Bardwell, Faith Leland,	*Champaign,*	General, L. and A.
Barry, George Richard,	*Hillsboro,*	Civil Engineering.
Bates, John Schuyler,	*Monmouth,*	Civil Engineering.
Bayard, Maurice Francis,	*Vincennes, Ind.,*	Architecture.
Bell, Edgar Deforest,	*Urbana,*	Mechanical Eng'g.
Black, Alice Mary,	*Champaign,*	General, L. and A.
Black, Laura Louise,	*Urbana,*	General, L. and A.
Bowles, Ida Huston,	*Paris,*	General, L. and A.
Braden, Behring Erle,	*Decatur,*	Natural Science.
Brayton, Louis Frederick,	*Mt. Morris,*	Architectural Eng'g.
Briggs, Claude Porter,	*Minier,*	General, L. and A.
Buchanan, James William,	*Charleston, Ind.,*	Natural Science.
Buell, Fred Allen,	*Ridge Farm,*	Electrical Eng'g.
Burdick, Jay Horace,	*Elgin,*	Agriculture.
Caldwell, Charles Burr,	*Monticello,*	Natural Science.
Campbell, Ashton Ellsworth,	*Champaign,*	Eng. and Mod. Lang.
Chamberlin, Charles Cory,	*Hoopston,*	General, L. and A.
Carr, George Russell,	*Oak Park,*	Chemistry.
Chapin, Edward Pierce,	*Champaign,*	General, L. and A.
Chapman, Charles Hiram,	*Vienna,*	General, L. and A.
Chester, Margaret,	*Champaign,*	General, L. and A.
Chipps, Willis Cullen,	*Sullivan,*	Mechanical Eng'g.
Clokey, Ira Waddell,	*Decatur,*	Agriculture.
Collins, Guy Richard,	*Urbana,*	Mechanical Eng'g.
Cone, George Carroll,	*Farmington,*	Architecture.
Cook, Clara,	*Champaign,*	General, L. and A.

Crossland, George Marshall,	*Sheldon,*	General, L. and A.
Curfman, Lawrence Everett,	*Urbana,*	Math. and Physics.
Davidson, Bessie Marie,	*Wooster, Ohio,*	Library.
Davis, Mary Belle,	*Urbana,*	General, L. and A.
Drew, Fred Leon,	*Elgin,*	Mechanical Eng'g.
Dunning, William Neil,	*Chicago,*	Civil Engineering.
Emmett, Arthur Donaldson,	*Peoria,*	Chemistry
Fairclo, George Cassius,	*Champaign,*	Civil Engineering.
Fishback, Mason McCloud,	*Champaign,*	General, L. and A.
Fisher, James Mellville,	*Neoga,*	General, L. and A.
Franks, Charles Wilber,	*Brookville,*	General, L. and A.
Frazey, Nellie May,	*Urbana,*	General, L. and A.
Freese, John Andrew,	*Cadwell,*	Natural Science.
Frost, Frank G,	*Gays,*	Mechanical Eng'g.
Fucik, Edward James,	*Chicago,*	Electrical Eng'g
Gardiner, Charles Matthew,	*Champaign,*	Chemistry.
Garnett, Grace Ann,	*St. Marys,*	General, L. and A.
Garrett, Richard Pratt,	*Delavan,*	Political Science.
Gayman, Myrtle,	*Champaign,*	General, L. and A.
Gibbs, George, Jr.,	*Champaign,*	Natural Science.
Gillett, Walter Noble,	*Chicago,*	Electrical Eng'g.
Gilmore, Thomas,	*Macomb,*	Electrical Eng'g.
Ginzel, Roland Francis,	*Trenton,*	Architecture.
Gleason, Henry Allen,	*Champaign,*	Natural Science.
Goodwin, John Mitchell,	*Hot Springs, Ark.,*	Political Science.
Gordon, Joseph Hinckley,	*Vandalia,*	Classical.
Graber, Howard Tyler,	*Peoria,*	Chemistry.
Green, Frances Myrtle,	*Urbana,*	General, L. and A.
Greene, Charles Thomas,	*Chicago,*	Classical.
Gridley, Harry Norman,	*Virginia,*	General, L. and A.
Griswold, Augustus Harold,	*Princeton,*	Electrical Eng'g.
Gross, Albertina Marguerite,	*Joliet,*	Natural Science.
Gulick, Margaret Grace,	*Champaign,*	General, L. and A.
Hammers, Edna Rose,	*Champaign,*	General, L. and A.
Hannan, John Edward,	*Champaign,*	General, L. and A.
Hartrick, Guy Russell,	*Urbana,*	Chemistry.
Hayes, Zella Bernice,	*Urbana,*	General, L. and A.
Hays, Carl,	*Urbana,*	Civil Engineering.
Headen, Thomas Moulton,	*Shelbyville,*	General, L. and A.
Hensley, Marion Charles,	*Champaign,*	Chemistry.
Hicks, Byron Wallace,	*Warren,*	Electrical Eng'g.

Hinkle, Ida May,	*Champaign,*	General, L. and A.
Hinrichsen, Edward Eugene,	*Jacksonville,*	Electrical Eng'g.
Holcomb, Timothy Osmond, Jr.,	*Milmine,*	Natural Science.
Hobble, Arthur Casson,	*Rushville,*	Electrical Eng'g.
Hoppin, Charles Albert,	*Aurora,*	Mechanical Eng'g.
Horrom, William Alva,	*Atlanta,*	Civil Engineering.
Housel, Oscar Lloyd,	*Galesburg,*	Electrical Eng'g.
Howard, Clara Elizabeth,	*Bloomington,*	General, L. and A.
Hughes, Clarence Wilbert,	*Urbana,*	General, L. and A.
Hunter, Harry Edgar,	*Newton, Iowa,*	Architecture.
Hurlbert, Flora Dorothy,	*Morrison,*	Library.
Joy, Samuel Scott,	*Princeton,*	Architecture.
Kariher, Harry Cullen,	*Champaign,*	Natural Science.
Katt, Adolph John,	*Belleville,*	Mechanical Eng'g.
Keator, Edward Oris,	*Polo,*	Civil Engineering.
Kemmerer, John Martin,	*Assumption,*	Civil Engineering.
Kirkpatrick, Harlow Barton,	*Anna,*	Civil Engineering.
Kolbe, Benjamin Ralph,	*St. James, Minn.,*	Electrical Eng'g.
Laugman, John Oscar,	*Helmar,*	Natural Science.
Layton, Katherine Alberta,	*Canton,*	Classical.
Lewis, Addison Thompson,	*Chatham,*	Chemistry.
Lindley, Walter Charles,	*Neoga,*	General, L. and A.
Lodge, Paul Edmund,	*Monticello,*	General, L. and A.
Lotz, John Rudolph,	*Lockport,*	Electrical Eng'g.
Lowenthal, Fred,	*Chicago,*	General, L. and A.
Lyman, Frank Lewis,	*Farmingdale,*	Chemistry.
Lytle, Ernest Barnes,	*Decatur,*	Math. and Physics.
McAnally, Harry Forrest,	*Paris,*	Electrical Eng'g.
McCall, Eugene Adolphus,	*Vienna,*	General, L. and A.
McCormick, Roscoe,	*Garber,*	Natural Science.
McCune, Fred Leavitt,	*Sterling,*	Mechanical Eng'g.
Martin, Camden Edward,	*Lacon,*	General, L. and A.
Marsh, Albert Leroy,	*Pana,*	Chemistry.
Miles, Rutherford Thomas,	*Champaign,*	Natural Science.
Miller, William Pitt,	*Champaign,*	Math. and Physics.
Mitchell, Annie,	*Bement,*	General, L. and A.
Moon, Amy Constance,	*Champaign,*	General, L. and A.
Murphy, Merritt Norton,	*Chicago,*	Electrical Eng'g.
Myers, Jesse J,	*Green River,*	Natural Science.
Nabstedt, Frederick,	*Davenport, Ia.,*	Electrical Eng'g.
Newcomb, Cyrus Forsyth,	*Champaign,*	Natural Science.

Newton, Fred Earle,	*Onarga,*	General, L. and A.
Nichols, Bertha Vie,	*Champaign,*	General, L. and A.
Nicholson, Gunther,	*Lima, Ind.,*	General, L. and A.
Norton, Charles Waterman,	*Lockport,*	Classical.
O'Hair, Edna,	*Laurel, Ind.,*	General, L. and A.
Parkins, Charles Raymond,	*Chicago,*	Civil Engineering.
Patrick, Frederick Phillips,	*Blue Island,*	Architectural Eng'g.
Pearson, Frank Edward,	*Chicago,*	Civil Engineering.
Peeples, Cornelius James,	*Shawneetown,*	Eng. and Mod. Lang.
Pletcher, Nuba Mitchel,	*Hoopeston,*	General, L. and A.
Pollard, Earle Royal,	*Centralia,*	Mechanical Eng'g.
Praeger, William Emilius,	*Keokuk, Iowa,*	Natural Science.
Radcliffe, William Hickman,	*Springfield,*	Civil Engineering.
Ray, Walter Thornton,	*Metamora,*	Mechanical Eng'g.
Read, Nellie Lewis,	*Urbana,*	General, L. and A.
Redfield, George William,	*Galesburg,*	Electrical Eng'g.
Roberts, Harry Ashton,	*Ottawa,*	Civil Engineering.
Rogers, Lawrence Stevens,	*Mendota,*	Civil Engineering.
Rolfe, Mary Annette,	*Champaign,*	Natural Science.
Scarborough, Charles Middlesworth,	*Shelbyville,*	General, L. and A.
Schroeder, Curt August,	*Chicago,*	Chemistry.
Scott, Frank William,	*Centralia,*	General, L. and A.
*Seidel, Charles William,	*Sterling,*	Civil Engineering.
Short, Walter Campbell,	*Fillmore,*	General, L. and A.
Simmons, Aaron Trabue,	*Jerseyville,*	Architecture.
Sims, Mrs. Flora Morris,	*Urbana,*	Art and Design.
Sluss, Alfred Higgins,	*Tuscola,*	Electrical Eng'g.
Smith, George Carroll,	*Flora,*	General, L. and A.
Smith, Percy Almerin,	*Dixon,*	Natural Science.
Stevenson, Ralph Ewing,	*Bloomington,*	Mechanical Eng'g.
Stewart, Miles Vincent,	*Toulon,*	Electrical Eng'g.
Stoltey, Jennie Florence,	*Champaign,*	General, L. and A.
Storey, Ellsworth Prime,	*Chicago,*	Architectural Eng'g.
Swift, Charles Clyde,	*Streator,*	Civil Engineering.
Tallyn, Louis Liston,	*Benson,*	Civil Engineering.
Theodorson, William Auton,	*Chicago,*	Civil Engineering.
Thompson, Lenora Belle,	*Steward,*	General, L. and A.
Tompkins, Clara Alice,	*Grover,*	Agriculture.
Tull, Effie May,	*Farmer City,*	Classical.
Veirs, David Carroll,	*Urbana,*	Mechanical Eng'g.

*Deceased.

Wahl, Henry,	*Sterling,*	Electrical Eng'g.
Wait, Ernest Ludden,	*Urbana,*	Chemistry.
Warner, Harry Jackson,	*Prophetstown,*	Chemistry.
Whelpley, Cecilia,	*Cobden,*	Natural Science.
Williams, Ralph Joseph, A.B. *(Knox Coll.)*, 1897,	*Galesburg,*	Architecture.
Willson, Hiram Everett,	*Carbondale,*	Mechanical Eng'g.
Wright, Sidney Walter,	*Atlanta,*	General, L. and A.
Zipf, Ferdinand,	*Hopedale,*	Mathematics.
Zuck, Cassius Harmond,	*Rockford,*	Mechanical Eng'g.

FRESHMAN

Ahrens, Anna Wilhelmina,	*Champaign,*	General, L. and A.
Allen, Edith Louise,	*Delavan,*	Natural Science.
Alspach, Fred Albert,	*Mt. Pulaski,*	Civil Engineering.
Ashley, George Edwin,	*Urbana,*	Natural Science.
Bader, Will John,	*Quincy,*	Chemistry.
Bamberger, George Washington,	*Chicago,*	Agriculture.
Barackman, Guy Bernard,	*Streator,*	Civil Engineering.
Barr, John,	*Urbana,*	Civil Engineering.
Bassett, Frank Deloss,	Kewanee,	Architectural Eng'g.
Beebe, Florence Jennie,	*Blunt, S. Dak.,*	General, L. and A.
Beers, LeRoy Fitch,	*North Harvey,*	Electrical Eng'g.
Bell, Arthur Timothy,	*Azotus,*	Mathematics, L. and A.
Berfield, Clyde,	*Toulon,*	Natural Science.
Berger, Donald Forbes,	*Anna,*	Agriculture.
Berger, William Louis,	*Geneseo,*	Civil Engineering.
Bidwell, Carlyle Dickerman,	*Chicago,*	Electrical Eng'g.
Block, Edgar William,	*Sidney,*	Civil Engineering.
Bopp, William George,	*Chicago,*	General, L. and A.
Boudinot, Eugene Stimson,	*Danville,*	Municipal Eng'g.
Boyd, Edward Parkman,	*Aledo,*	Architecture.
Bramhall, Robert Nicholas,	*Chicago,*	Electrical Eng'g.
Brookie, Frank McCord,	*Vincennes, Ind.,*	Civil Eng'g.
Brookings, Louise Roberts,	*DuQuoin,*	General, L. and A.
Brown, Lewis,	*Rockford,*	Electrical Eng'g.
Bruce, Robert Charles,	*Joliet,*	Mechanical Eng'g.
Buell, Edward Thomas,	*Chicago,*	Electrical Eng'g.
Burnham, Edna Sophia,	*Dixon,*	Natural Science.
Busey, Paul Graham,	*Urbana,*	Natural Science.
Cadwell, Charles Nickerson,	*Urbana,*	General, L. and A.

Cambridge, Louis,	*Champaign,*	Math. and Physics.
Canmann, Harry Louis,	*Chicago,*	Civil Engineering.
Carson, Thomas Francis,	*Urbana,*	Natural Science.
Carter, William Curtis,	*Homer,*	Electrical Eng'g.
Chamberlain, Mary Chase,	*Topeka, Kas.,*	Science.
Chapin, Arlo,	*Champaign,*	General, L. and A.
Clark, Elwyn Lorenzo,	*Momence,*	Civil Engineering.
Clark, Emma Alberta,	*Sidney,*	General, L. and A.
Clark, Thomas Aquilla,	*Sidney,*	Electrical Eng'g.
Clarke, Roger Newman,	*Farmington,*	Electrical Eng'g.
Clarke, Victor Hugo,	*Quincy,*	Mechanical Eng'g.
Clayton, Clark Mensch,	*Dixon,*	Municipal Eng'g.
Collier, Ben Harrison,	*Gibson City,*	General, L. and A.
Condit, Jay Sidney,	*Beardstown,*	Political Science.
Cook, James Fitchie,	*Dundee,*	Mechanical Eng'g.
Cook, William Adelbert,	*Neponset,*	General, L. and A.
Coombe, Harry N,	*Arcola,*	Agriculture.
Cornell, Grace Margaret,	*Streator,*	Philosophy, L. and A.
Cottingham, William Stillman Chapin,	*Lincoln,*	Agriculture.
Cowley, Thomas Philip,	*Rockford,*	Mechanical Eng'g.
Cummings, Wilber Judd,	*Sparta, Mich.,*	Architecture.
Dadant, Louis Charles,	*Hamilton,*	Mechanical Eng'g.
Davis, George Harvey,	*Charleston,*	General, L. and A.
Dawson, Charles Hubbard,	*Bement,*	Natural Science.
Day, Charles Phillip,	*Urbana,*	Mechanical Eng'g.
Dedman, Bryant,	*Sullivan,*	Mechanical Eng'g.
DeMotte, Roy James,	*Urbana,*	Natural Science.
DeMotte, Ruby Thorne,	*Urbana,*	Natural Science.
Dills, Eve Idelle,	*Decatur,*	Natural Science.
Dinwiddie, Elizabeth,	*Champaign,*	Architecture.
Dobbins, Ethel Irene,	*Champaign,*	General, L. and A.
Doty, Lee Boone,	*Savanna,*	Math. and Physics.
Drake, Jeannette Mae,	*Decatur,*	General, L. and A.
Draper, Charlotte Enid,	*Hakodate, Japan,*	General, L. and A.
Draper, Edwin Lyon,	*Urbana,*	Chemistry.
Drury, Clair Fred,	*New Boston,*	Architecture.
Duffy, Guy,	*Ottawa,*	Political Science.
Ealey, Minnie,	*Urbana,*	Music.
Edwards, Harry,	*Dixon,*	Math. and Physics.
Edwards, Ralph Owen,	*Belleflower,*	General, L. and A.
Engstrom, Ella Victoria,	*Peoria,*	Natural Science.

Farrar, Floyd Judson,	*Downers Grove,*	Civil Engineering.
Farrin, James Moore,	*Cairo,*	Electrical Eng'g.
Fleming, Rose Eilene,	*Bennett,*	General, L. and A.
Fleming, Virgil R,	*Denver,*	General, L. and A.
Forbes, Ethel Clara Schuman,	*Urbana,*	General, L. and A.
Francis, Oscar Jefferson,	*Omaha, Neb.,*	Architectural Eng'g.
Frazer, Joanna Vera,	*Springfield,*	General, L. and A.
Frazier, James William,	*Bushton,*	Natural Science.
Fullenwider, Thomas Irvin,	*Mechanicsburg,*	Civil Eng'g.
Fullerton, Hugh Regnier,	*Havana,*	General, L. and A.
Fulton, Robert Bruce,	*Hartford City, Ind.,*	Civil Eng'g.
Fursman, William Hiram,	*El Paso,*	Civil Engineering.
Gaffin, Benjamin Hiestand,	*Leaf River,*	Agriculture.
Garver, Lewis Cormany,	*Rockford,*	Civil Engineering.
Gaston, Ralph Mayo,	*Normal,*	Electrical Eng'g.
Gilkerson, Aletha,	*Hampshire,*	Natural Science.
Gillespie, Belle Irene,	*Champaign,*	General, L. and A.
Gillespie, Louella Ida,	*Champaign,*	Music.
Gilster, Conrad George,	*Chester.*	Electrical Eng'g.
Goff, Mary Emma,	*Rantoul,*	General, L. and A.
Gramesly, Margaret Amidon,	*Charleston,*	General, L. and A.
Greenman, Edwin Gardner,	*Champaign,*	Mechanical Eng'g.
Grimm, Clifford Ernest,	*Canton,*	General, L. and A.
Griswold, Lewis Edwin,	*Blue Mound,*	Agriculture.
Hall, Augusta Maude,	*Urbana,*	General, L. and A.
Hampton, Leon Edward,	*Fowler, Ind.,*	Agriculture.
Hanna, Max Ross,	*Rushville,*	Electrical Eng'g.
Hannah, Calvin Richard,	*Chrisman,*	Natural Science.
Harman, John James,	*Milford,*	Civil Engineering.
Harpole, Byron,	*Champaign,*	Electrical Eng'g.
Harris, Chester Ellis,	*Ogden,*	Natural Science.
Harris, Thaddeus Sidney,	*Modesto,*	Natural Science.
Harris, Thomas Luther,	*Modesto,*	General, L. and A.
Harshman, Lucius Romaine,	*Sullivan,*	Classical.
Hartford, Elmer Ellsworth,	*Arcola,*	Mechanical Eng'g.
Harvey, Raymond Wade,	*Griggsville,*	Natural Science.
Hatch, Walter Ray,	*Goshen, Ind.,*	Civil Engineering.
Hayward, Minnie,	*Elgin,*	General, L. and A.
Henderson, Alexander,	*Chicago,*	Classical.
Henderson, Robert, Jr.,	*Buchanan, Mich.,*	Natural Science.
Herdman, Luella Mary,	*Monmouth,*	Art and Design.

Herrick, Lyle George,	*Farmer City,*	General, L. and A.
Herrick, Dwight Orson,	*Farmer City,*	General, L. and A.
Higgins, Gertrude Stansfield,	*El Paso, Tex.,*	Music.
Higgins, Samuel Chase,	*El Paso, Tex.,*	Mechanical Eng'g.
Hill, Robert Crawford,	*Canandaigua, N. Y.,*	Nat. Science.
Hinckley, George Clifford,	*Aurora,*	Chemistry.
Hintze, William Daggett,	*Elgin,*	General, L. and A.
Hobart, Harry Edwin,	*Armington,*	General, L. and A.
Holmes, Alfred Edwin,	*Bradford,*	Civil Engineering.
Hoover, Harry Harold,	*Pontiac,*	Chemistry.
Hopkins, Mabel,	*Indianapolis, Ind.,*	General, L. and A.
Horner, Harlan Hoyt,	*Cerro Gordo,*	General, L. and A.
Hostetter, Abram,	*Mt. Carroll,*	General, L. and A.
Howe, Harriet Emma,	*Urbana,*	General, L. and A.
Howlett, Royal Sheffler,	*Trinidad, Colo.,*	Architecture.
Hunter, Charles Phelps,	*Newton, Iowa,*	General, L. and A.
Ijams, Catherine Harriet,	*Urbana,*	Science.
Jarman, Henry Phelps,	*Elmwood,*	Chemistry.
Jarman, Thomas Henry, Jr.,	*Greensboro, Md.,*	Electrical Eng'g.
Jefferson, Roy Trend,	*Springfield,*	Mechanical Eng'g.
Johnson, Fred Vallentine,	*Champaign,*	Mechanical Eng'g.
Johnson, John Peter,	*Hamilton, Iowa,*	Electrical Eng'g.
Jutton, Lee,	*Champaign,*	Civil Engineering.
Kable, Charles Howard,	*Virden,*	Architecture.
Kable, Russell Freeman;	*Virden,*	Mechanical Eng'g.
Lamkin, Grace Minerva,	*Champaign,*	General, L. and A.
Landon, Truman Harry,	*Jerseyville,*	Architectural Eng'g.
Lautz, Walter Ernest,	*Pekin,*	Mechanical Eng'g.
Lindgren, Justa Morris,	*Moline,*	General, L. and A.
Linzee, Fred Norton,	*DuQuoin,*	Electrical Eng'g.
Logan, Harry Ralph,	*Arcola,*	General, L. and A.
Lundgren, Carl Lee,	*Marengo,*	Civil Engineering.
McCarthy, Harry,	*Moline,*	Mechanical Eng'g.
McCracken, George Milas,	*Pana,*	Architecture.
McCulloch, Albert Barnes,	*St. Louis, Mo.,*	Natural Science.
McGinnis, Mary Ola,	*Dawson,*	Natural Science.
McIntosh, Kathryn Eleanor Annie,	*Champaign,*	General, L. and A.
McVay, Camden Jacob,	*Champaign,*	Mechanical Eng'g.
Malcolm, Charles Wesley,	*Roseville,*	General, L. and A.
Manspeaker, Pearle,	*Champaign,*	General, L. and A.
Mapes, John Victor,	*Paris,*	Chemistry.

Martin, Albert Carey,	*LaSalle,*	Architectural Eng'g.
Martin, Webb Wilde,	*Jerseyville,*	Chemistry,
Mather, Jennie Maria,	*East Wheatland,*	General, L. and A.
Mathews, Clyde Milton,	*Urbana,*	General, L. and A.
Mathis, Roy Hayes,	*Prophetstown,*	Natural Science.
Matthews, Robert Clayton,	*Monmouth,*	Mechanical Eng'g.
Maxwell, Esther Anna,	*Champaign,*	General, L. and A.
Means, Clara Adeline,	*Stevens Point, Wis.,*	General, L. and A.
Meier, William,	*Chicago,*	Civil Engineering.
Merrill, Orland Paul,	*Elgin,*	Natural Science.
Mills, Ralph Garfield,	*Decatur,*	Natural Science.
Monier, Sara,	*Champaign,*	General, L. and A.
Moore, Claude Bliss,	*Kankakee,*	Electrical Eng'g.
Moran, Mark Asher,	*Canton,*	Electrical Eng'g.
Murphy, John Campbell,	*Long Grove, Ia.,*	Chemistry.
Neikirk, John Oscar,	*Forest City,*	Mechanical Eng'g.
Neill, Robert Park,	*Sparta,*	Electrical Eng'g.
Neville, Russell Trall,	*Kewanee,*	Natural Science.
Newbold, Theodore Aubrey,	*Joliet,*	Mechanical Eng'g.
Newman, James Christopher,	*Sparta,*	Electrical Eng'g.
Norris, Carter,	*Farmer City,*	General, L. and A.
Parker, Lawrence Gilbert,	*Toluca,*	Civil Engineering.
Patrick, Jessie May,	*Logansport, Ind.,*	General, L. and A.
Perkins, Nellie,	*Vienna,*	General, L. and A.
Pilcher, Lela Gretchen,	*Streator,*	Math. and Science.
Plant, Francis Benjamin,	*Champaign,*	Chemistry.
Poor, Edwin Lindsay,	*Streator,*	Natural Science.
Post, Hiram Franklin,	*Rock Rapids, Ia.,*	Electrical Eng'g.
Price, Hugh Mitchel,	*Champaign,*	Civil Engineering.
Ranson, Clara Ann,	*Havana,*	General, L. and A.
Read, Edgar Newton,	*Urbana,*	Chemistry.
Reasoner, Clara Beck,	*Seymour,*	Natural Science.
Reeves, George I,	*Wauponsee,*	Natural Science.
Riley, Anna Bethiar,	*Urbana,*	General, L. and A.
Roa, William John,	*Edwardsville,*	Architectural Eng'g.
Robinson, James John,	*Marshall,*	Natural Science.
Rolfe, Susie Farley,	*Champaign,*	Natural Science.
Rose, Alice,	*Oak Park,*	General, L. and A.
Roy, Robert Oscar,	*Anna,*	Electrical Eng'g.
Salladay, George Roy,	*Homer,*	Math. and Physics.
Samson, George Roy,	*Urbana,*	General, L. and A.
Sanders, Theodore Marcus,	*Little Rock, Ark.,*	Architecture.

Sawyer, Donald Hubbard,	*Oak Park,*	Municipal Eng'g.
Schreiner, Harry,	*Rock Island,*	Architectural Eng'g.
Schulte, Mabel,	*Hopedale,*	General, L. and A.
Schumacher, Tillie Joe,	*Champaign,*	General, L. and A.
Schwartz, Albert John,	*Dallas City,*	Civil Engineering.
Seymour, Ernest DeLacey,	*Dwight,*	Natural Science.
Shawhan, William Warren,	*Champaign,*	Civil Engineering.
Shea, Willard Wright,	*Danville,*	General, L. and A.
Shimmin, Robert Philip,	*Rockford,*	Mechanical Eng'g.
Slocumb, Edward Clyde,	*Keithsburg,*	Civil Engineering.
Smith, Anna Mary,	*Dixon,*	General, L. and A.
Smith, Claude Frederick,	*Marengo,*	General, L. and A.
Smith, Nelle Cynthia,	*Arcola,*	General, L. and A.
Snodgrass, John McBeath,	*Urbana,*	Mechanical Eng'g.
Stanley, Otis Orion,	*Champaign,*	Natural Science.
Stedman, Jeannette,	*Champaign.*	Music.
Steely, George,	*Danville,*	General, L. and A.
Stoltey, Pansy Blossom,	*Champaign,*	Music.
Storms, Mabel Moore,	*Fairport, N. Y.,*	General, L. and A.
Summerhays, William Arthur,	*Chicago,*	Civil Engineering.
Sutter, John Henry, Jr.,	*Chicago,*	Civil Engineering.
Sweet, William Lorraine,	*Champaign,*	Electrical Eng'g.
Talbot, Carrie E,	*Plymouth,*	Classical.
Taylor, John Orlo,	*Hayes,*	Math. and Physics.
Tenney, Charles Frederick, Jr.,	*Bement,*	General, L. and A.
Thompson, Evangeline Louise,	*Bement,*	General, L. and A.
Thompson, Frank Linn,	*Champaign,*	General, L. and A.
Thompson, McDonald,	*Isabel,*	Electrical Eng'g.
Thornton, Curt,	*Tuscola,*	Electrical Eng'g.
Thornton, Robert Ingersoll,	*Magnolia,*	Civil Engineering.
Updike, Hector,	*Belleville,*	Electrical Eng'g.
Vance, Edna Cecilia,	*Edwardsville,*	Natural Science.
Wallace, Jacob H,	*Altamont,*	Mechanical Eng'g.
Waterbury, Leslie Abram,	*Polo,*	Civil Engineering.
Watson, Everett,	*Arcola,*	Natural Science.
Webber, Charles Albert,	*Ferris,*	Classical.
Wendell, Francis George,	*New Holland,*	Civil Engineering.
Wentworth, John Lewis,	*Kewanee,*	Mechanical Eng'g.
Wesselhoeft, Charles Dietrich,	*Chicago,*	Electrical Eng'g.
Whitaker, Jesse Lee,	*Kinmundy,*	General, L. and A.
White, James Dunwell,	*Taylorville,*	General, L. and A.
Whitehouse, Edith Ursula,	*Canton,*	Classical.

Whitson, Milton James,	*Davenport, Ia.,*	Architecture.
Wilder, Paul,	*Champaign,*	General, L. and A.
Winkinson, Nathan,	*Emporia, Kas.,*	Electrical Eng'g.
Williams, Elrick,	*Illiopolis,*	Chemistry.
Williams, Seymour,	*Monticello,*	Classical.
Wilson, Thomas,	*Caledonia,*	Electrical Eng'g.
Wolff, Solomon,	*El Paso, Tex.,*	Electrical Eng'g.
Wolleson, Herbert Henry,	*Belleville,*	Architectural Eng'g.
Woodin, Norman Charles,	*Rock Island,*	Mechanical Eng'g.
Woody, Paul Way,	*Champaign,*	Natural Science.
Worsdell, Arthur Eleazar,	*Vermont,*	Civil Engineering.
Wright, Edith,	*Urbana,*	Natural Science.
Zarley, William Hadsall,	*Joliet,*	Civil Engineering.

SPECIALS

Atwood, Frank Howard,	*Dwight,*	Natural Science.
Azbill, Ethel Wolcott,	*Indianapolis, Ind.,*	General, L. and A.
Ainsworth, Nellie Elizabeth,	*Champaign,*	Music.
Bartholomew, Ross,	*Vermont,*	Agriculture.
Beach, Abbie Clair,	*Sioux City, Ia.,*	Music.
Beadle, Lucius,	*Kewanee,*	Chemistry.
Bennett, William Lee,	*Urbana,*	Classical.
Besore, Jessie,	*Urbana,*	Music.
Brown, Mae Ellen,	*Augusta,*	Music.
Brundage, Martin Denman,	*Malta,*	General, L. and A.
Buckley, John,	*Stanford,*	Classical.
Bundy, Ralph Parmer,	*Zionsville, Ind.,*	General, L. and A.
Carter, Ira Calvin,	*St. Charles, Minn.,*	Architecture.
Carter, Opal Gertrude,	*Champaign,*	Natural Science.
Casner, William Allen,	*Earlville,*	Mechanical Eng'g.
Chester, Edith,	*Champaign,*	Art and Design.
Childs, Sue Eva,	*Clinton, Ia.,*	General, L. and A.
Clark, Mrs. Meta Baker,	*Champaign,*	Art and Design.
Clark, William Owen,	*Scottland,*	Mechanical Eng'g.
Conard, Philip Arthur,	*Monticello,*	General, L. and A.
Corson, Frank,	*Marengo,*	Mechanical Eng'g.
Coultas, Albert Leslie,	*Winchester,*	Agriculture.
Craig, Arthur Emanuel,	*Fair Grange,*	General, L. and A.
Crathorne, Annie Ellen,	*Champaign,*	General, L. and A.
Craw, Nellie Edna,	*Sadorus,*	Music.
Crawford, Emma,	*Urbana,*	Music.

Crawford, George Barnes,	*Champaign,*	Music.
Custer, Mae Viola,	*Danville,*	Music.
Dadant, Valentine Marie,	*Hamilton,*	General, L. and A.
Davis, Ida Belle,	*Bondville,*	General, L. and A.
Davis, Cleon Leslie,	*Mt. Zion,*	Civil Engineering.
Dillon, Gertrude Sempill,	*Sheldon,*	General, L. and A.
Dole, Sarah,	*Mattoon,*	General, L. and A.
Draper, Charlotte Leland,	*Urbana,*	Music.
Duncan, Henry Lyle,	*Washington, Ind.,*	Architecture.
English, Edward Cary, Jr.,	*Anna,*	Architectural Eng'g.
Ennis, George Harrison,	*Decatur,*	Chemistry.
Enochs, Delbert Riner, A.B., 1898,	*Champaign,*	Music.
Fenner, Edith L,	*Urbana,*	Music.
Flanigan, Bessie Marie,	*Champaign,*	Music.
Fleming, George K,	*Denver,*	General, L. and A.
Fleming, Marcella Augusta,	*Bement,*	Music.
Fleshman, Arthur Cary,	*Bagdad, Ky.,*	General, L. and A.
Ford, Ralph Leo,	*Lewistown,*	Mechanical Eng'g.
Frazier, Elmer Allen,	*Champaign,*	General, L. and A.
Garwood, Mabel Clare,	*Augusta,*	Art and Design.
Gearhart, Orval Lee, B.S., 1897,	*Farmer City,*	Civil Engineering.
Gensel, Mrs. Martha Eleanor,	*Urbana,*	Music.
Gere, Clara,	*Champaign,*	Music.
Girty, Maude,	*Urbana,*	Music.
Green, Edward Clarence, B.S., *(Michigan Agricultural College)*, 1897,	*Urbana,*	Music.
Grevenkamp, Herman Henry,	*Quackanbruck, Germany,*	Natural Science.
Gridley, Burton E,	*Virginia,*	General, L. and A.
Hahn, Howard Hartford,	*Freeport,*	Architecture.
Hammers, Jesse,	*Champaign,*	General, L. and A.
Hanson, Gertrude Lucie,	*Urbana,*	General, L. and A.
Haüssler, Dwight Francis,	*Centralia,*	Political Science.
Hauter, Andrew Edgar,	*Tiskilwa,*	Political Science.
Hauter, Joseph Elmer,	*Tiskilwa,*	General, L. and A.
Holcomb, Bessie,	*Milmine,*	Music.
Holder, Vernon Milner,	*Normal,*	Architecture.
Huff, Nolan Hynson,	*Centre,*	General, L. and A.
Hughes, Davis Everett,	*Pinkstaff,*	General, L. and A.
Hurlbert, Nina Elouise,	*Morrison,*	Music.

Huston, Frank Derr,	*Virden,*	Mechanical Eng'g.
Hutchinson, Frank,	*Olney,*	Civil Engineering.
Ice, Laura Frances,	*Gifford,*	Music.
Irwin, Herbert Ellwood,	*Galesburg,*	Mechanical Eng'g.
Jayne, Violet Delille, A.M. *(University of Michigan)*, 1896,	*Urbana,*	Music
Johnson, Clarence Eugene,	*Champaign,*	General, L. and A.
Jones, Fred Earl,	*Cerro Gordo,*	Electrical Eng'g.
Kable, Mary Alice,	*Virden,*	Music.
Kemp, George Theophilus, M.D., Ph.D.,	*Champaign,*	Music.
Ketzle, Henry Benjamin,	*Reynolds,*	Electrical Eng'g.
Killam, Samuel Eugene,	*Carlinville,*	Electrical Eng'g.
Kratz, Laura, A.B., 1897,	*Monticello,*	General, L. and A.
Latzer, Alice Bertha,	*Highland,*	Natural Science.
Lee, Kittie Grace,	*Homer,*	Music.
LeFevre, Ervilla Belle,	*Urbana,*	Music.
Loeffler, Katherine Armina,	*Ogden,*	Music.
McClenathan, Effie Elma,	*Fairmount,*	Art and Design.
McConnell, Cecilia B.	*Winnetka,*	Library.
McGinnis, Cora Nell,	*Dawson,*	General, L. and A.
McIntosh, Mabel Charlotte Urquhart,	*Champaign,*	Music.
McIntyre, Margaret Pearl,	*Newman,*	Music.
McLane, Elmer Cavett,	*Allerton, Ia.,*	Classical.
McReynolds, Dora Genevra,	*Bethany,*	General, L. and A.
Mandeville, Elizabeth Elma,	*Philo,*	General, L. and A.
Messer, Harry,	*Charleston,*	General, L. and A.
Milne, David Haxton,	*Cairo,*	Art and Design.
Mojonnier, Timothy,	*Highland,*	Chemistry.
Mount, Madison Hoge,	*Walnut Prairie,*	Mechanical Eng'g.
Nash, Benjamin Franklin, Jr.,	*Champaign,*	Music.
Needham, John Lowry,	*Neoga,*	Natural Science.
Neikirk, Oren Herschel,	*Forest City,*	General, L. and A.
Odbert, Alice Bradway,	*Indianola,*	Music.
Parsons, Delta Maye,	*DeLand,*	Music.
Parsons, Margaret May,	*Ludlow,*	Music.
Payne, Rinnie Camille,	*LeRoy,*	Music.
Peacock, Lottie Belle,	*Bloomington,*	Music.
Plunkett, Rollin Azel,	*Trimble,*	Natural Science.
Porterfield, Jessie Belle,	*Champaign,*	Music.
Quirk, Elizabeth,	*Champaign,*	Music.

Reed, Mrs. Adele Cooper,	*Paxton,*	Library.
Russian, Hovhannes,	*Harpoot, Turkey,*	Chemistry.
Sawyer, George Kingsley,	*Carpentersville,*	Mechanical Eng'g.
Schillinger, Josephine,	*Moline,*	General, L. and A.
Scott, Vera Charlotte,	*Mahomet,*	General, L. and A.
Seymour, Roy Vincent,	*Dwight,*	General, L. and A.
Shelton Addison M,	*Loami,*	General, L. and A.
Short, Ulysses Sheridan,	*Filmore,*	General, L. and A.
Sirpless, Lora,	*Champaign,*	Music.
Smick, Mary Ella,	*Athens,*	Music.
Smith, Allie Crawford,	*Genoa,*	Electrical Eng'g.
Smith, Helen Amelia,	*Sidney,*	Music.
Spink, Charles Raymond,	*Davenport, Ia.,*	Architecture.
Stave, Edith,	*Champaign,*	Music.
Stockton, Lalla Rookh,	*Burlington, Ind.,*	General, L. and A.
Stoner, Inez Amanda,	*Paxton,*	Art and Design.
Stratton, Isaac Harry,	*Toulon,*	Natural Science.
Swanberg, Floyd Ludwig,	*Danville,*	Electrical Eng'g.
Taggert, Anna, A.M. *(Shurtleff Coll.)*, 1897,	*Upper Alton,*	General, L. and A.
Taylor, Dalla Alice,	*Hays,*	General, L. and A.
Thatcher, Alice Neta,	*Decatur,*	Art and Design.
Thomas, William Frederick,	*Bradford,*	General, L. and A.
Thompson, Mrs. Dora Belle,	*Yates City,*	Music.
Thompson, Willard Carr,	*Canton,*	Agriculture,
Thordenberg, Fred Moses,	*Rock Island,*	Architecture.
Tillotson, Mabel,	*Kinder, La.,*	Music.
Tumbleson, Alvin Truesdell,	*Harrisonville, Mo.,*	Architecture.
Wagner, James Irwin,	*Sumner,*	General, L. and A.
Ward, Guy Warren,	*Champaign,*	Agriculture.
Wead, Urith Lois,	*Paris,*	General, L. and A.
Weaver, Edith Maria,	*Urbana,*	Music.
Weeks, John Riley,	*Quincy,*	Mechanical Eng'g.
Wever, John Emile,	*Clayton,*	General, L. and A.
White, Joseph Pius,	*Danville,*	Architecture.
White, William Elmer,	*Pana,*	Political Science.
Williamson, Josephine Hulda,	*Champaign,*	Music.
Wilson, Love Frances,	*Guthrie,*	Music.
Wright, Beatrice Ellen,	*Champaign,*	Music.
Wright, William Wilberforce, Jr.,	*Toulon,*	General, L. and A.
Zwisler, Joseph Edwin,	*Canton,*	Electrical Eng'g.

STUDENTS AT BIOLOGICAL STATION, HAVANA, JUNE-AUGUST, 1898.

Baldwin, Anna Laura,	*Pittsfield.*
Cook, Thomas Lee,	*Mt. Pulaski.*
Craig, Wallace, B.S., 1898,	*Chicago.*
Dewey, Louise Sarah, B.S., 1897,	*Urbana.*
Faust, Clarence Clermont,	*Mansfield,*
Garber, John Frederick, A.B., 1897,	*Houston, Tex.*
Johnson, John Thomas,	*Galesburg.*
Kofoid, Nellie Ione, B.S., 1898,	*Normal.*
Meharry, Jesse Erle,	*Tolono.*
Pierce, Mrs. Sarah Elizabeth,	*Havana.*
Praeger, William Emilius,	*Keokuk, Iowa.*
Pratt, Lanson Henry,	*Delavan.*
Sehacht, Frederick William, M.S., 1898,	Moline,
Widmann, Otto,	*Old Orchard, Mo.*
Young, Charles Whittier, B.S., 1897,	*Chicago.*

WINTER SCHOOL IN AGRICULTURE—1899

Adams, Guy Taylor,	*Elgin.*
Alton, John Russell,	*Grand Tower.*
Arnott, LeRoy,	*Paxton.*
Benson, Wilbur John,	*Kempton,*
Bines, Robert Scott,	*Ridge Farm.*
Burke, Benjamin,	*Champaign.*
Callaway, Leonard Wyeth,	*Tuscola.*
Colby, William Davis, Jr.,	*Atkinson,*
Engelmann, Julius,	*Shiloh,*
Finch, Jesse Peter,	*Verona.*
Gardner, Thomas Andrew,	*Beason.*
Gaul, Jacob Melvan,	*Cadwell,*
Householder, Fred, Jr.,	*Fairbury.*
Hubbard, Fred Clark,	*Urbana.*
Hunter, William Ferguson,	*Geneseo.*
Kincaid, Archie Simpson,	*Champaign.*
Leas, Elmer Edwin,	*Stone Bluff, Ind.*
Mather, Charles Asa,	*Joliet.*
Mullin, Stephen,	*Urbana.*
Nicholson, Joseph,	*Lee Center.*

Pfingsten, Fred William,	*Meacham.*
Prusz, Henry Louis,	*Johannisburg.*
Scott, Philip Collins,	*Kempton.*
Smith, Charles Ernest,	*Rossville.*
Smith, Raymond Whitfield,	*Farmer City.*
Werd, Charles Lower,	*Lanark.*

SCHOOL OF LAW

THIRD YEAR

Donoghue, Richard Charles,	*LaSalle.*
Trapp, Harold Frederick,	*Lincoln.*

SECOND YEAR

Adams, Otto C,	*Cerro Gordo.*
Armstrong, J Lattrell,	*Urbana.*
Baker, Zion Frost,	*Sullivan.*
Barrett, George Francis,	*Chicago.*
Boyd, Hobart Sherman,	*Lewistown.*
Cooper, Fred Worth,	*Champaign.*
Dougherty, Horace Raymond, A.B. *(Univ. of Chicago)*, 1896,	*Peoria.*
Douglass, Reuben S, A.B. *(Marietta Coll.)*,	*Champaign.*
Dunseth, James Morten,	*Urbana.*
Glenn, Leslie Leland,	*Champaign.*
Glenn, Otis Ferguson,	*Champaign.*
Grossberg, Harry Altman,	*Chicago.*
Hughes, Arlington H,	*Mattoon.*
Kennard, Perry Garst,	*Champaign.*
Ketchum, Margaret Adéle,	*LaPrairie.*
Lamet, Louis Harman,	*Warsaw.*
Latch, Fred Everett,	*Atwood.*
May, Fred Hutchinson,	*Prophetstown.*
Mulliken, Albert Danforth,	*Champaign.*
Ostrowski, Samuel,	*Chicago.*
Philips, Thomas Lewis,	*Belvidere.*
Pontious, Ralph Woods,	*Macomb.*
Rhodes, Edward Melvin,	*Bloomington.*
Schaefer, Peter Philip,	*Carlyle.*
Trevett, John Howard,	*Champaign.*
Van Brundt, Chester S,	*Champaign.*
Wesemann, Adolph Henry,	*LaGrange.*
Winkler, Frank Crawford,	*Oakland.*

FIRST YEAR

Adsit, Bertram Wilson,	*Wellington.*
Boggs, Oliver Carter,	*Urbana.*
Borden, William Thomas,	*Chicago.*
Boyd, John William,	*Rantoul,*
Brittingham, Harry Lee,	*Danville.*
Church, Floyd Franklin,	*Jacksonville.*
Dolan, William John,	*Ohio.*
Dougherty, Ralph Leland, A.B. *(Univ. of Chicago)*, 1897,	*Peoria.*
Elder, Roy Samuel,	*Streator.*
Evans, Waldo Carl,	*Danville.*
Fulton, William John, A.B., 1898,	*Hartford City, Ind.*
Gillespie, Hiram, A.B. *(Univ. of Chicago)*, 1898,	*Lincoln.*
Griffin, Roy Hawks,	*Polo.*
Hall, Arthur Raymond,	*East Lynn.*
Howard, Joseph,	*Urbana.*
Humphrey, Wallace George,	*Hamilton.*
King, Jacob Weinberg,	*Augusta.*
Kuhn, Leopold,	*Champaign.*
Lego, Lulu Mackintosh,	*Urbana,*
McCollum, Harvey Darling,	*Louisville.*
Null, Louis Agassiz,	*Blandinsville.*
Padget, Will Marion,	*Palmyra.*
Perkins, Frederic Allen,	*Canton.*
Polk, Cicero Justice, A.B., 1898.	*Champaign.*
Post, Herbert Earl,	*Springfield.*
Remann, Frederick Gordon,	*Vandalia.*
Sherman, William Horace,	*Sullivan.*
Stevenson, Amos Milton,	*Ottawa.*
Thompson, George Mershon,	*Bement.*
Tunnecliffe, John James, Jr.,	*Galesburg.*
Vonderlieth, Henry Louis,	*Mt. Pulaski.*
Waite, Will Clarence,	*Danville.*
Wilder, Frank,	*Champaign.*
Wingard, Lewis Forney,	*Champaign.*

SPECIALS

Bridge, Horace Lawrence,	*Solsville, N. Y.*
Coffman, Harry Augustus,	*Champaign.*
Craig, James Wesley,	*Mattoon.*

Crouch, William Liebrick,	*Rosetta.*
Hunsley, Frank Sherman,	*Champaign.*
Lorenson, John Hanson,	*Lovington.*
Riley, James Charles,	*Bloomington.*

SCHOOL OF MEDICINE

(COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO)

SENIOR CLASS

Albrecht, Charles A.,	
Ph.G. *(Chicago Coll. Pharmacy)*, 1890,	*Minnesota.*
Andrews, Hubert Franklin,	
B.S. *(Univ. of Illinois)*, 1893,	*Utah.*
Backus, J. W.,	*Michigan.*
Barker, Ernest S.,	
A.M. *(Univ. of Manitoba)*, 1897,	*Manitoba.*
Barnes, Frederic Louis,	*Iowa.*
Bay, Hiram Horace,	*Illinois.*
Bechtold, August F.,	*Illinois.*
Beedy, Lora Lucille,	*Pennsylvania.*
Best, E. E.,	
M.D. *(Chicago Homeopathic Coll.)*, 1896,	*Iowa.*
Betz, Jonathan Clymant,	*Illinois.*
Brewer, Edwin Jason,	*Illinois.*
Brown, J. M.,	*Illinois.*
Browning, George Stillman,	
B.S. *(Alfred Univ.)*, 1896,	*Rhode Island.*
Burke, Thomas Jerome,	*Iowa.*
Bush, John Harvey,	
Ph.M. *(Austin Coll.)*, 1896,	*Illinois.*
Butkiewicz, Kasimir A.,	
A.B., Ph.G. *(Moscow Univ.)*, 1882,	*Illinois.*
Butler, Clarence Albert,	*Illinois.*
Campbell, William B.,	
M.D. *(Milwaukee Medical School)*, 1898.	*Wisconsin.*
Carroll, Henry Colistis,	*Illinois.*
Chambers, William Henry,	
M.D. *(Ohio Medical Univ.)*,	
Ph.B. *(Mount Hope College)*,	*Pennsylvania.*

Chloupek, Elton Arthur,	*Wisconsin.*
Coen, Charles Morgan,	*Illinois.*
Crosby, Leonard Green,	*Minnesota.*
Czarra, Conrad Howard,	*Illinois.*
Dolan, Felix A.,	*Iowa.*
Dugan, James Henry,	*Maryland.*
A.B. *(Georgetown Univ.),* 1896,	
Edwards, John Milton,	*Minnesota.*
Fantus, Bernard,	*Illinois.*
Feingold, Leon,	*Illinois.*
Fellows, Marie A.,	*Missouri.*
Fisher, George Carl,	*Michigan.*
Frank, Ira,	*Illinois.*
Freas, Frank Lesley,	*Illinois.*
Fukala, Carlos,	*Austria.*
Garth, James W.,	*Iowa.*
Gathman, Henry F. A.,	*Illinois.*
Goggins, Robert,	*Wisconsin.*
Grabowicz, Bronislaus Casimir,	
Ph.M. *(Vienna, Austria),* 1887,	*Illinois.*
Grimes, John P.,	
Ph.G. *(Northwestern Univ.),* 1895.	*Illinois.*
Harris, Frederick G.,	*Illinois.*
Hammond, James Lloyd,	*Indiana.*
Heald, Harvey C.,	
B.S. *(Univ. of Nebraska),* 1896,	*Nebraska.*
Herzog, Albert Edmund,	*Ottawa.*
Hillard, Thomas R.,	
A.B. *(Grove City Coll.),*	*Pennsylvania.*
Hillebrand, Henry J.,	*Illinois.*
Hisom, Helen Taylor,	*California.*
Hukill, Hannah Luella,	*Illinois.*
Hummell, Charles C.,	
Ph.G. *(Chicago Coll. of Pharmacy),* 1892.	*Iowa.*
Hunter, Mary Gill,	
B.S. *(Ohio Univ.),* 1882; M.D., *(Cleveland Univ. of Med. and Surg.),* 1896,	*Iowa.*
Jacobson, August,	
Ph.G. *(Chicago Coll. of Pharmacy),* 1880,	*Illinois.*
Janss, Herman,	*California.*
Kay, Abbott Elliott,	*Illinois.*

Kelly, L. H.,	*Indiana.*
Kelsey, Russell Calvin,	*Illinois.*
Klein, Matthias Joseph,	*Illinois.*
Klokke, William Emil,	*Illinois.*
Knudson, Frank Benjamin,	*Illinois.*
Koeneman, Eugene O., Ph.G. *(Drake Univ.)*, 1889,	*Iowa.*
Krueger, Albert G.,	*Texas.*
Kunitoma, N., M.D.,	*Illinois.*
Lafferty, Thomas D.,	*Illinois.*
Lee, Alfred O., M.D.,	*Illinois.*
Lemke, A. R.,	*Illinois.*
Lenard, Robert, Ph.G.,	*Illinois.*
Lerch, William Henry,	*Iowa.*
Lockie, G. D.,	*Illinois.*
Long, William E.,	*Iowa.*
Long, R. D.,	*Colorado.*
Lucas, David E.,	*Illinois.*
McCarthy, Robert Groves,	*Washington.*
McClung, Alberta V., M.D.,	*Minnesota.*
McCormick, Charles Alfred, M.D. *(Illinois Medical Coll.)*, 1898,	*Illinois.*
McWilliams, Oscar E.,	*Pennsylvania.*
Macy, Otto E., Ph.G. *(Univ. of Iowa)*, 1896,	*Iowa.*
Madajesky, Ernest Henry, Ph.G. *(Univ. of Wisconsin)*, 1891,	*Michigan.*
Maskey, F. F., M.D. *(Milwaukee Medical Coll.)*,	*Wisconsin.*
Metcalf, John E., A.B. *(Indiana Univ.)*, 1893,	*Indiana.*
Meyers, Frank W.,	*Iowa.*
Miller, S. A.,	*Tennessee.*
Mintener, John W.,	*Minnesota.*
Moore, F. D.,	*Illinois.*
Myers, Frederick Wolfgang,	*Iowa.*
Olson, Wilhelm Carolius,	*Minnesota.*
Peters, James A.,	*Iowa.*
Platt, Benjamin Merchant,	*Illinois.*
Pleth, Valdemar, A.B., Ph.B. *(Univ. of Copenhagen)*,	*Illinois.*

Potter, Jesse Young,	*Michigan.*
Ramsey, Frank P.,	*Ohio.*
Raw, Elmer Joseph,	*Iowa.*
Reasoner, Mathew Aaron, B.S. *(Univ. of Illinois)*, 1896,	*Illinois.*
Reich, William Frederic,	*Wisconsin.*
Rich, R. Gilbert, M.D.C. *(Chicago Veterinary Coll.)*, 1893,	*Iowa.*
Richards, Frederick A.,	*South Dakota.*
Russell, Herman Richard,	*Minnesota.*
Sanderson, Philip Gray,	*Michigan.*
Scheib, George F., B.S., *(Heidelberg Univ.,* Tiffin, Ohio), 1892,	*Illinois.*
Schmitt, Gustav, M.D. *(Jenner Medical Coll.)*, 1898.	*Illinois.*
Schoenberg, Albert John,	*Illinois.*
Sisson, Charles Elvin,	*Wisconsin.*
Smith, Thurston, A.M. *(Indiana Univ.)*, 1896,	*Indiana.*
Steele, Frank Bell,	*Illinois.*
Slightam, Clarence Howard,	*Wisconsin.*
Stillians, Arthur William,	*Illinois.*
Strohecker, Samuel Martin, Ph.G. *(Coll. of Pharmacy,* Phil.), 1890,	*Illinois.*
Stuart, John, A.B. *(Balliol Coll.,* Oxford), 1881,	*Scotland.*
Sullivan, Eugene A.,	*Illinois.*
Swanson, John Emil, A.B. *(Augustana Coll.)*, 1896,	*Illinois.*
Taylor, John Richard, B.D. *(Oberlin Coll.)*, 1890,	*Illinois.*
Tieken, Theodore, Ph.G. *(Northwestern Univ.)*,	*Illinois.*
Timm, Edmund Walter, Ph.G. *(Northwestern Univ.)*, 1894,	*Wisconsin.*
Turner, John Harold, A.B. *(Princeton Univ.)*, 1894,	*Iowa.*
Walsh, John L.,	*Illinois.*
Wanicek, Edward Mathias, M.D.,	*Illinois.*
Weber, Carl E.,	*Illinois.*
Weichbrodt, Ernst August, M.D.,	*Illinois.*

Wenzel, John Valentine,	
Ph.G. *(Northwestern Univ.)*, 1895,	*Illinois.*
Whitmore, E. R.,	
B.S. *(Univ. of Wisconsin)*, 1896,	*Wisconsin.*
Wier, Wood W.,	
A.B. *(Hillsdale Coll.)*, 1895,	*Indiana.*
Wherry, James William,	
M.S. *(Iowa Wesleyan Univ.)* 1885,	*Iowa.*
Wilson, Leroy Alvin,	*Indiana.*
Winans, Edward Clark,	
A.B. *(Univ. of Michigan)*, 1893,	*Michigan.*
Wood, Glenn,	*Illinois.*
Yeakel, William Kriebel,	
B.S. *(Univ. of Illinois)*, 1895,	*Illinois.*
Yingst, Sally Ann,	*Illinois.*
Zurawski, Kasimir A.,	
Ph.G. *(Univ. of Kieff)*, 1889; A.B. *(Coll. of Philol.,* St. Petersburg), 1891,	*Illinois.*

JUNIOR CLASS

Babcock, Margaret McConnell,	*Pennsylvania.*
Ball, Edmund Joseph,	*Indiana.*
Birkelund, John R.,	
A.B. *(Royal Univ.,* Copenhagen), 1886;	
B.D. *(Royal Univ.,* Copenhagen), 1890.	*Illinois.*
Blackwelder, Fred C.,	
B.S. *(DePauw Univ.)*, 1897,	*Illinois.*
Bland, Morton Wallace,	*Ohio.*
Bloch, Max Emanuel,	*Illinois.*
Brown, Hadley C.,	*Iowa.*
Burke, Edward L.,	*Minnesota.*
Buswell, Clark A.,	*Illinois.*
Carver, Simon Clayton,	*Illinois.*
Cassidy, William Wilson,	*Minnesota.*
Chase, Mrs. Barbara West,	*Minnesota.*
Church, Elwin Otis,	*South Dakota.*
Clark, Orson Whitney,	*Iowa.*
Corbus, Burton Robison,	*Illinois.*
DeVault, Asa Nathan,	
Ph.G. *(Northwestern Univ.)*, 1893,	*Illinois.*
DeVoe, Charles Allen,	*Wisconsin.*

Donovan, J. P.,	*Wisconsin.*
Dowdall, Guy Grigsby, B.L. *(Univ. of Missouri)*, 1897,	*Illinois.*
Dryden, William Francis,	*Illinois.*
Dysart, Robert Jones, A.B. *(Lake Forest Univ.)*, 1893,	*Wisconsin.*
Early, Calvin Sylvester,	*Ohio.*
Flippin, George Albert,	*Illinois.*
Freeman, John Peter,	*Minnesota.*
Gaul, Adolph Carl Adam, Ph.G. *(Wurzburg Univ.)*,	*Illinois.*
Gausel, Edward Arthur,	*Wisconsin.*
Geiger, Arthur Henry,	*Illinois.*
George, Abel Benson,	*Iowa.*
Gilmore, Clifford Freeman, B.S. *(Oberlin)*, 1897,	*Ohio.*
Green, Mary Emily,	*Illinois.*
Greenfield, Sadie Elaine, A.B. *(Univ. of Kansas)*, 1897,	*Kansas.*
Grinnell, Wendell,	*Wisconsin.*
Halloin, Louis Joseph,	*Wisconsin.*
Hamilton, Howard B., A.B. *(Monmouth Coll.)*, 1897,	*Iowa.*
Hannon, Horace Blake, Ph.G. *(Univ. of the South)*, 1895,	*Illinois.*
Hart, Henry George,	*Illinois.*
Heath, Clarence Wright, B.L. *(Univ. of Michigan)*, 1893,	*Michigan.*
Hixson, Robert Bruce,	*Minnesota.*
Hummel, Edward Percival,	*Iowa.*
Hurst, Everett May,	*Indiana.*
Hyde, Edward Everett, A.B. *(Knox Coll.)*, 1896,	*Illinois.*
Jakubowski, Siegfrid,	*Illinois.*
Johnston, Robert Moore, A.B. *(Wash. and Jeff. Coll.,* Pa.), 1895,	*Pennsylvania.*
Just, Guy Horatio,	*Illinois.*
Kattenbracker, Harry,	*Iowa.*
Kerrigan, George Peter,	*Illinois.*
King, Louis, Ph.G.,	*New York.*
Knauf, Frederick Peter,	*Wisconsin.*

Laben, George J.,	
B.S. *(Purdue Univ.)*, 1895,	*Indiana.*
Lang, John Michael,	*Illinois.*
Ling, Frank,	*Illinois.*
Lloyd, Claude Allen,	
A.B. *(Eureka Coll.)*, 1897,	*Illinois.*
Loope, Frank Roy,	*Michigan.*
Luehismann, Bernard,	*Norway.*
McAuliff, A. F.,	*Illinois.*
McCormick, Olin,	*Illinois.*
McConnell, John William,	*Illinois.*
McCray, Walter Robert,	
Ph.G. *(Univ. of Iowa)*, 1897,	*Iowa.*
Martin, Ernest Edwin,	*Iowa.*
Mason, Harry Philson,	*Iowa.*
Masilko, Vandy Frank,	*Illinois.*
Meany, John Joseph,	*Illinois.*
Meloy, J. Earle,	
A.B. *(Cornell Univ.)*, 1892,	*New York.*
Metz, Irvin T.,	
A.B. *(Indiana Univ.)*, 1895,	*Indiana.*
Miller, Bernard,	*Illinois.*
Miller, Gustav August,	*Illinois.*
Milroy, William D.,	
A.B. *(Indiana Univ.)*, 1894,	*Indiana.*
Moffett, William Nelson,	
B.S. *(Coe College)*, 1898,	*Iowa.*
Moldenhauer, Gustav Herman,	*Illinois.*
Monahan, Richard Charles,	*Iowa.*
Moody, Lewis,	
A.B. *(Augustana Coll.)*, 1895,	*Minnesota.*
Morgan, Mary Emma,	*Illinois.*
Morse, Mrs. Clara Kellogg,	*Michigan.*
Muehlmann, Carl George,	
Ph.G. *(Chicago Coll. of Pharmacy)*,	*Illinois.*
Murphy, Bernard E.,	*Illinois.*
Nier, William Jacob,	*Illinois.*
Norsman, Soren S.,	*Wisconsin.*
North, Francis Elbert,	*Illinois.*
Odoardo, Antonio Fredericks,	
A.B. *(Univ. of Havana)*, 1889,	*Cuba.*

Osborne, Claude Fenton,	*Iowa.*
Palmer, Ralph Fleetwood,	*Michigan.*
Parsons, Stephen Tylor,	*Illinois.*
Patterson, William Edward,	*Iowa.*
Phalen, James Matthew,	
Ph.G. *(Northwestern Univ.)*, 1892,	*Illinois.*
Pinkerton, Walter Jewett,	*Wisconsin.*
Potter, Ward Elverton,	
Ph.G. *(Northwestern Univ.)*, 1897,	*Illinois.*
Purcell, Harry Edward,	*Wisconsin.*
Rock, Henry Joseph,	*South Dakota.*
Rose, Felix,	*Wisconsin.*
Runyan, Chanler Preston,	*Indiana.*
Sargeant, Frank Loring,	*Iowa.*
Sassaman, Franklin W.,	
M.D. *(Central Univ. of Kentucky)*, 1892,	*Indiana.*
Sears, George Lucien,	*Illinois.*
Seifert, Matthias Joseph,	*Illinois.*
Sheppard, Louis Delos,	*Illinois.*
Staehle, Max,	*Wisconsin.*
Syverson, Elmer Louis,	
B.L. *(Univ. of South Dakota)*, 1896,	*South Dakota.*
Taber, Roland Bert,	
Ph.C. *(Univ. of Michigan)*, 1896,	*Michigan.*
Teschan, Rudolph Freimuth,	*Wisconsin.*
Thompson, James Raymond,	*Iowa.*
Torney, Samuel James,	*Iowa.*
Turner, D. Ashley,	*Nevada.*
Twohig, Henry Edward F.,	*Wisconsin.*
Tyson, Earle Henry,	*Iowa.*
Vincent, Henry Ansel,	*Wisconsin.*
Voight, Charles Bernard,	*Illinois.*
Voss, Carl,	
A.B. *(Royal Univ.,* Christiania, Norway), 1889,	*Illinois.*
Wall, Charles Delamere,	*Illinois.*
West, Theodore C.,	*Wisconsin.*
Westerlund, Joseph Emanuel,	
A.B. *(Augustana Coll.)*, 1895,	*Illinois.*
Xelowski, John Henry,	
Ph.G. *(Chicago Coll. of Pharmacy)*, 1887,	*Illinois.*

Yung, Julius Rudolph,	*Indiana.*
Zaleski, Joseph Pius, Ph.G. *(Univ. of Warsaw, Poland)*, 1891,	*Poland.*

SOPHOMORE CLASS

Ames, Andrew James,	*Minnesota.*
Annis, Reginald,	*Wisconsin.*
Apfelbaum, David,	*Illinois.*
Baumann, Fritz, Ph.D.,	*Germany.*
Bechtol, Charles Orville, A.B. *(Indiana Univ.)*, 1898,	*Indiana.*
Bentley, Frederick James,	*Illinois.*
Birk, J. W.,	*Ohio.*
Borden, Frank R., Ph.G. *(Northwestern Univ.)*, 1896,	*Wisconsin.*
Bracken, George Francis,	*Illinois.*
Brawley, Frank Ellis, Ph.G. *(Northwestern Univ.)*, 1897,	*Illinois.*
Buechner, F. E., Ph.G. *(Univ. of Illinois)*, 1897,	*Illinois.*
Burke, Edward Wilbur,	*Iowa.*
Burt, Charles Ward, B.S. *(Drake Univ.)*, 1896,	*Iowa.*
Buss, Francis Jacoby,	*Illinois.*
Cameron, Warren L.,	*Oregon.*
Carpenter, Cora White,	*Illinois.*
Cates, G. M.,	*Illinois.*
Colburn, George Alfred,	*Illinois.*
Conway, Hugh P.,	*Wisconsin.*
Corbett, George William, Ph.G.,	*Wisconsin.*
Corbus, B. Clark,	*Illinois.*
Chassell, John Langdon,	*Iowa.*
Cheng, Yung Peng,	*China.*
Church, Elmer E.,	*Illinois.*
Clark, Leslie Webb,	*Wisconsin.*
Crepler, R. Clinton, Ph.G. *(Northwestern Univ.)*, 1896,	*Illinois.*
Cunningham, William Dickson, A.B. *(Grove City Coll.)*, 1897,	*Pennsylvania.*
Denny, Alden Ray, Ph.B. *(Univ. of Iowa)*,	*Iowa.*
Dethlefsen, George Hans,	*Illinois.*

Dodson, Charles A.,	*Illinois.*
Domer, Walter A.,	*Indiana.*
English, Edward G.,	*Wisconsin.*
Garraghan, Edward Francis,	
A.B. *(St. Ignatius Coll.)*, 1895,	*Illinois.*
Gorrell, Talbot John Home,	*Illinois.*
Gustafson, Joseph Ansley,	*Illinois.*
Heintz, Edward Louis,	
Ph.G. *(St. Louis Coll. Pharmacy)*, 1898,	*Missouri.*
Helen, William Eugene,	*Illinois.*
Hess, William Clarance,	*Iowa.*
Holmberg, LeRoy John,	*Wisconsin.*
Hombach, William Peter,	*Iowa.*
Howard, Harry W.,	*Washington.*
Hunt, H. H.,	*Iowa.*
Johnson, Cecil C.,	*Iowa.*
Jordan, Marion S.,	*Iowa.*
Kaeser, Albert F.,	
B.S. *(Univ. of Illinois)*, 1898,	*Illinois.*
Kellogg, James Rossiter,	*Wisconsin.*
Kennedy, Josie C.,	*Illinois.*
Kirk, Alonzo Blackburn,	*Indiana.*
Kinder, Roscoe George William,	*Illinois.*
Koch, Wesley Alfred,	*Illinois.*
Lampe, Henry G.,	*Illinois.*
Lennon, Aloysius Joseph,	*Illinois.*
Leonard, Henry Sylvester,	
A.B. *(Miami Univ.)*, 1898,	*Indiana.*
Liggitt, Flemming L.,	*Illinois.*
Little, Zack J.,	*Kansas.*
Lockhart, Carl Wright,	
Ph.G. *(Northwestern Univ.)*, 1898,	*Wisconsin.*
Lorch, George John,	
Ph.G. *(Chicago Coll. of Pharmacy)*, 1895,	*Wisconsin.*
Luehrs, Henry E.,	*Wisconsin.*
McClellan, Clarence,	
V.S. *(Ontario Veterinary Coll.)* 1891,	*Indiana.*
McCoy, William Merrill,	*Iowa.*
McDowell, W. D.,	
B.S. *(Monmouth Coll.)*,	*Illinois.*
McDowell, William Orrin,	*Iowa.*

McGuinn, James J.,	*Illinois.*
McPherson, Warren G.,	*Illinois.*
Major, Will, B.S. *(Eureka Coll.),*	*Illinois.*
Martin, Winfred B.,	*Illinois.*
Mortimer, Frank,	
B.S., C.E. *(Mass. Inst. Tech.),* 1897,	*Illinois.*
Morton, Frank R.,	*Illinois.*
Newman, William Manning,	*Minnesota.*
Noble, Charles Montague,	*Illinois.*
Oliver, Clifton I.,	*Iowa.*
Orcutt, Dwight Chapman,	*Illinois.*
Osborn, William Shelton,	*Iowa.*
Palmer, John Mathew,	*Wisconsin.*
Polson, Nina Dell,	*Missouri.*
Pratt, Mrs. J. Irene,	*Illinois.*
Rhodes, Ora M.,	
B.S. *(Univ. of Illinois),* 1898,	*Illinois.*
Robertson, William F.,	*Iowa.*
Rolfs, Theodore Henry,	*Wisconsin.*
Rouse, Elmer E.,	*Michigan.*
Ruge, Edward Cornelius,	*Wisconsin.*
Ryon, Ralph Morton,	*Illinois.*
Sexton, Ira J.,	*Illinois.*
Scofield, Charles J.,	*Illinois.*
Sherwood, Hauphrey H.,	
Ph.G. *(Northwestern Univ.),* 1894,	*Illinois.*
Soegaard, Erik,	*Illinois.*
Sommers, John Charles Julius,	*Wisconsin.*
Storck, William,	
Ph.G. *(Chicago Coll. Pharmacy),* 1889,	*Illinois.*
Streich, Edwin August,	
Ph.G. *(Northwestern Univ.),* 1898,	*Wisconsin.*
Struthers, Herbert Rankin,	
Ph.G. *(Chicago Coll. of Pharmacy),* 1893,	*Illinois.*
Talmage, George G.,	*Indiana.*
Taylor, Lucius Lorin,	*Wisconsin.*
Thomas, George H.,	*Illinois.*
Tillmont, Charles P.,	*New York.*
Turner, Agnes,	*Indiana.*
Ulrich, Julius Hirsch,	
Ph.G. *(Philadelphia Coll. Pharm.),* 1895,	*Illinois.*

Urquhart, Roy Thomas,	*Indiana.*
VanHorne, James Apthorp,	*Illinois.*
Wall, Frank J. A.,	*Illinois.*
Wallen, Vera W.,	*Illinois.*
Waskow, Otto G., Ph.G. *(U. of I. Coll. of Pharmacy),*	*Illinois.*
West, E. Talmage, A.B. *(Washington Coll.),*	*Tennessee.*
Willing, Bertha Lillian,	*Wisconsin.*
Wiltfong, Charles O.,	*Indiana.*
Zabokrtsky, Joseph,	*Iowa.*

FRESHMAN CLASS

Aaron, William H.,	*Illinois.*
Agnew, J. Stanton,	*Illinois.*
Ames, James Walton,	*Wisconsin.*
Bartholomew, Philip Henry,	*Pennsylvania.*
Beebe, Orville Everette,	*Illinois.*
Beyer, Arthur E., Ph.G.,	*Iowa.*
Bice, Clyde William,	*Iowa.*
Boynton, Lillian,	*Illinois.*
Brown, Josiah Scott,	*Illinois.*
Brown, R. E.,	*Ohio.*
Brownstein, Bernard,	*Illinois.*
Burnham, Clarence Martin,	*Illinois.*
Caldwell, Henry C.,	*Kansas.*
Cleary, John Henry,	*Wisconsin.*
Coates, Lintsford B.,	*Illinois.*
Conant, Philo B.,	*Michigan.*
Conitz, Leopold Alexander,	*Indiana.*
Court, Harry Marshall,	*North Dakota.*
Day, Harriet M.,	*Illinois.*
Dean, Joseph, Jr.,	*Wisconsin.*
Donkle, Alfred DeForest, Ph.G. *(Univ. of Wisconsin),*	*Wisconsin.*
Dorn, Charles,	*Minnesota.*
Dvorsky, B. J.,	*Illinois.*
Dwyer, John Condit,	*Illinois.*
Everett, Henry H.,	*Illinois.*
Faeth, Victor P.,	*Ohio.*
Freeman, Wacoochee A.,	*Illinois.*

French, Wilbur M., B.L. *(Missouri Coll.)*,	*Missouri.*
Fuller, Francis Elmer,	*Michigan.*
Garrett, Emmett A.,	*Illinois.*
Grabow, Paul E.,	*Illinois.*
Groos, John O.,	*Michigan.*
Hahn, Louis August,	*Illinois.*
Hammers, Lewis J.,	*Illinois.*
Harrington, Charles W.,	*Wisconsin.*
Hartman, William M.,	*Wisconsin.*
Haynes, B. H.,	*Iowa.*
Henderson, Maurice L.,	*Iowa.*
Holmes, Edward M.,	*Illinois.*
Holmes, John Mont,	*Illinois.*
Hoxsey, Robert Patton, B.S.,	*Illinois.*
Ingersoll, Harriet T.,	*Illinois.*
Inks, Charles A.,	*Indiana.*
Jennings, Ralph E.,	*Indiana.*
Johnson, Wilbur V.,	*Illinois.*
Kaa, Niels A.,	*Illinois.*
Kirch, John P.,	*Wisconsin.*
Kitterman, Fred Raymond,	*Illinois.*
Kitterman, P. Gad,	*Iowa.*
Kittler, Walter Eugene,	*Wisconsin.*
Klehm, A. Louise,	*Illinois.*
Knox, Thomas P.,	*Wisconsin.*
Kurtz, Fred Baldwin,	*Indiana.*
Kyes, Sherman M.,	*Wisconsin.*
Lahodney, Charles J.,	*Illinois.*
Lane, Charles Sumner,	*Michigan.*
Larson, Charles Ludvig,	*Illinois.*
Leavitt, Frank J.,	*South Dakota.*
Leusman, E. Elsa,	*England.*
Lockwood, Charles Richard,	*Illinois.*
Low, Lew Morgan,	*Minnesota.*
Lunn, J. Martin,	*Wisconsin.*
Lyon, George Elmer,	*Illinois.*
McCarthy, Katherine Winifred,	*Illinois.*
McConvill, Bernard J.,	*Wisconsin.*
McKinney, I. Newton Charles,	*Illinois.*
Manning, F. Thomas,	*Wisconsin.*

Maris, Emilie R.,	*Minnesota.*
Meade, Frank Keith,	*Kansas.*
Merki, Emil J.,	*Illinois.*
Meyers, Judson Melvin,	*Wisconsin.*
Miller, George Lewis,	*Illinois.*
Miller, Noble W.,	*Illinois.*
Morris, Robert Wilson,	*New York.*
Murphy, T. Francis, A.B.,	*Illinois.*
Nadig, Vinton T.,	*Illinois.*
Phifer, Herbert Charles,	*Illinois.*
Piatt, W. B.,	*Illinois.*
Podgur, Maxwell,	*Illinois.*
Poinier, Edwin W.,	*Illinois.*
Potter, Charles A.,	*Illinois.*
Rodefeld, H. Henry,	*Illinois.*
Rosenthal, George Earnest,	*Illinois.*
Sabin, Alexander C.,	*Nebraska.*
Sawtelle, Henry Fenns,	*Illinois.*
Schoenberg, B.,	*Illinois.*
Shafer, H. O.,	*Indiana.*
Shelton, R. O.,	*Iowa.*
Sleyster, L. Rock,	*Wisconsin.*
Smiley, R. Borden,	*Wisconsin.*
Smith, G. W.,	*Illinois.*
Sprecher, Samuel,	*South Dakota.*
Standly, Kathryn,	*Missouri.*
Stegemain, Herman J.,	*Illinois.*
Tyvand, James C.,	*Wisconsin.*
Venn, Walter T.,	*Illinois.*
Vestling, V. I.,	*Illinois.*
Walvoord, Garret William,	*Wisconsin.*
Waufle, Guy C.,	*Illinois.*
Wells, William B.,	*Wisconsin.*
Whyte, Peter D.,	*Illinois.*
Wilson, J. M., B.L.,	*Illinois.*
Zohrlaut, George G.,	*Wisconsin.*

UNCLASSIFIED

Adams, Harry,	*Illinois.*
Anderson, W. J. J.,	*Illinois.*
Bassett, Fred,	*Illinois.*
Beach, Max,	*Illinois.*

Blahnik, Vencel L., Ph.G.,	*Illinois.*
Brooks, James D.,	*Illinois.*
Brown, Carver M.,	*Texas.*
Brown, J. Melvin,	*Illinois.*
Chittenden, H. W.,	*Missouri.*
Clark, A. B.,	*Illinois.*
Clemons, E. J.,	*South Dakota.*
Cowell, C. B.,	*Illinois.*
Donaldson, R. S.,	*Illinois.*
Edwards, B. A.,	*Illinois.*
Elliott, J. S.,	*Illinois.*
Emrich, G. L.,	*Illinois.*
Ernbrett, Helen,	*Illinois.*
Fales, E. N.,	*Illinois.*
Frankel, Henry A.,	*Illinois.*
Frazier, C. E.,	*Illinois.*
Gail, C. R.,	*Illinois.*
Garrettson, A. V.,	*Illinois.*
Gurley, E. L.,	*Ohio.*
Hague, A. S.,	*Illinois.*
Hallis, T. S.,	*Kansas.*
Hauff, Martha P.,	*Illinois.*
Hawkins, Walter,	*Illinois.*
Henderson, A. G.,	*Illinois.*
Hines, C. S.,	*Illinois.*
Hixson, Jessie,	*Michigan.*
Hoiby, Charles Oscar,	*Illinois.*
Hunt, Lister,	*Illinois.*
Johnson, T. O.,	*Illinois.*
Leist, Johanna,	*Illinois.*
Lowenrosen, A.,	*Illinois.*
Lodge, F. B.,	*Iowa.*
MacDonald, Charles,	*Illinois.*
McCauley, C.,	*Texas.*
McDowell, A. J.,	*Canada.*
McGarvey, W. R.,	*Indiana.*
Malcom, T. P.,	*Canada.*
Mercher, W. F.,	*Illinois.*
Merto, W. D.,	*Illinois.*
Neal, E. F.,	*Illinois.*
Phillips, Floyd, Ph.G.,	*Illinois.*

Reardon, Charles,	*Iowa.*
Rich, Mrs. K. B.,	*Illinois.*
Richter, A. J.,	*Illinois.*
Rightman, William Morris,	*Illinois.*
Rodsey, Adolph,	*Illinois.*
Rowe, F. C.,	*Illinois.*
Rudd, Eda,	*Texas.*
Scott, C. M.,	*Ohio.*
Schallenberger, W. B.,	*Indiana.*
Sinclair, George B.,	*Michigan.*
Spafford, W. B.,	*Illinois.*
Springer, C. F.,	*Canada.*
Steele, Don M.,	*Illinois.*
Stockton, William Clark,	*Ohio.*
Strauss, George,	*Michigan.*
Stokes, Arthur Charles,	*Nebraska.*
Swihart, C. S.,	*Illinois.*
Thompson, William Wilbur,	*Michigan.*
Tilton, Mae,	*Indiana.*
VanVleck, B. H.,	*Illinois.*
Wagner, George Alexander,	*Iowa.*
White, Roy M.,	*Illinois.*
Yoist, J. A.,	*Louisiana.*

SCHOOL OF PHARMACY

SENIORS

Arnold, George Edward,	*Illinois.*
Barnett, Moses,	*Indiana.*
Bartells, Charles Walter,	*Illinois.*
Biese, Carl August Bernhardt,	*Tennessee.*
Brady, Horatio Thomas Addis,	*Illinois.*
Bucholz, William John,	*Nebraska.*
Chism, John Samuel,	*Kansas.*
von Danden, Raymond,	*Illinois.*
Dauber, Adolph,	*Illinois.*
Davis, Cyrus Justin,	*Illinois.*
Davis, Leonard Watkins,	*Kansas.*
Eipper, August,	*Illinois.*
Elisburg, Louis Albert,	*Illinois.*
Fahrner, Pius Michael,	*Illinois.*

Gillette, Arthur,	*Michigan.*
Goeppner, George Christopher,	*Illinois.*
Gray, Margaret McClintock,	*Illinois.*
Greene, Grove,	*Michigan.*
Haeseler, Frank Preston,	*Iowa.*
Heidbreder, Albert Henry,	*Illinois.*
Hellmuth, Joseph Anthony,	*Illinois.*
Herbold, Charles,	*Illinois.*
Jansen, William Leonard,	*Illinois.*
Jewett, Harvey Claude,	*Illinois.*
Johnson, Alva Andrew,	*Wisconsin.*
Joubert, Louis Joseph,	*Illinois.*
Jungk, Walter August,	*Illinois.*
Lawrence, John Whitaker,	*Pennsylvania.*
Martin, John Wright,	*Georgia.*
Marvin, Zabina Earle,	*Michigan.*
Meinzer, Alonzo Edward,	*Iowa.*
Michelmann, Albert,	*Illinois.*
Mitchell, Jay Howard,	*Illinois.*
Mortland, Arthur Caldwell,	*Ohio.*
Munstermann, Henry Albert,	*Illinois.*
Nickerson, Howard Arthur,	*Ohio.*
Nims, Boyden,	*North Carolina.*
Phipps, Luther Hansford, M.D. *(Rush Medical Coll.)*, 1887,	*Illinois.*
Pick, Emil,	*Illinois.*
Pokorney, Frank Joseph,	*Illinois.*
Price, Walter Thomas,	*Texas.*
Reuter, William Conrad,	*Illinois.*
Robson, Andrew Jackson,	*Illinois.*
Samuelson, Carl John,	*Illinois.*
Schimelfenig, Charles Howard,	*Illinois.*
Schrodt, Jacob,	*Illinois.*
Seibert, Daniel Peter,	*Illinois.*
Smith, Frank George Douglas,	*North Dakota.*
Smith, Robert Clyde,	*Illinois.*
Snyder, William Edward,	*Illinois.*
Sturgas, Isa Belle,	*Iowa.*
Swanson, Harold Gideon,	*Illinois.*
Taylor, George Owen,	*Illinois.*
Taylor, Raymond Eugene,	*Illinois.*

Vannatta, Dewitt Snow,	*Illinois.*
Woelz, Frederick Wilhelm,	*Wisconsin.*
Zerbst, William,	*Illinois.*

JUNIORS

Alexa, Ludwik Frank,	*Illinois.*
Arnold, Almond Clifford,	*Michigan.*
Ballantine, Stewart,	*Illinois.*
Bank, Harry Lawrence Marie,	*Illinois.*
Banker, Edward Urias,	*Illinois.*
Batt, Herman,	*Illinois.*
Belmore, William Thomas,	*Illinois.*
Bilz, Michael Aloysius,	*Illinois.*
Bond, George Leslie,	*Illinois.*
Carmichael, Lewis Eber,	*Illinois.*
Caron, Walter,	*Illinois.*
Cholewinski, John Peter,	*Illinois.*
Dewitz, Otto John,	*Illinois.*
Dickey, Lilly A,	*Illinois.*
Dickelmann, Bernhard Frederick Herman,	*Illinois.*
Duffy, Michael Henry,	*Illinois.*
Fawcett, Jacob Theodore,	*Illinois.*
Fortin, William Henry,	*Illinois.*
Frain, Will Irvin,	*Indiana.*
Freburg, Amel Ernest,	*Illinois.*
Freeman, Roscius Wright,	*Wisconsin.*
Fulton, Peter MacMullen,	*Illinois.*
Goodman, Lewis,	*Illinois.*
Graham, William Rice,	*Illinois.*
Gregg, Maude Alma,	*Kansas.*
Hansen, Christian,	*Illinois.*
Hart, Benjamin Thomas,	*Illinois.*
Hobart, Mary Florence,	*Illinois.*
Hobart, Maude Finley,	*Illinois.*
Holderread, Walter,	*Illinois.*
Hollstein, Henry Charles,	*Illinois.*
Ives, George Smith,	*Illinois.*
Jackola, Abraham Arthur,	*Michigan.*
James, Clarence Lorenzo,	*Illinois.*
Jans, Albert,	*Illinois.*
Johnson, John August,	*Wisconsin.*
Kenney, Cornelius Edward,	*Wisconsin.*

Kiedaisch, George Arthur,	*Iowa.*
Klaverweiden, John Arnold,	*Illinois.*
Kreme, Frank Joseph,	*Illinois.*
Kucera, Anton,	*Wisconsin.*
Leemon, Charles Nathan,	*Illinois.*
Lestina, Joseph Matthew,	*Illinois.*
Letz, John,	*Wisconsin.*
Loan, James Michael,	*Illinois.*
Lofstrom, Frank Louis,	*Illinois.*
Machler, William George,	*Illinois.*
Mayer, Edward,	*Illinois.*
McGill, Charles Randolph,	*Illinois.*
McKinnie, Guy Leonard,	*Illinois.*
Mensching, William,	*Illinois.*
Monk, Louis,	*Illinois.*
Nechvatal, John Joseph,	*Illinois.*
Niemeyer, John,	*Iowa.*
Parker, Charles Wilbur,	*Michigan.*
Paul, George Henry,	*Wisconsin.*
Peel, Ernest,	*Kansas.*
Pettitt, Herbert Leroy,	*Illinois.*
Pfaff, Fred Louis,	*Illinois.*
Price, Moses Reuben,	*Illinois.*
Randack, Frank Joseph,	*Illinois.*
Reichmann, Albert,	*Illinois.*
Richmond, John Michael,	*Illinois.*
Rodenhouser, William Robert,	*Illinois.*
Rounds, Bird Cleo,	*Illinois.*
Safranek, Edward Jacob,	*Illinois.*
Salmon, Fred,	*Iowa.*
Samuels, John Jacob,	*Illinois.*
Scanlan, Walter Samuel,	*Illinois.*
Schmidt, Charles Henry,	*Illinois.*
Schmidt, Einar,	*Illinois.*
Schreiber, Louis,	*Nebraska.*
Scott, Paul Herman,	*Illinois.*
Seibert, Walter George,	*Illinois.*
Sees, Guy Deforest,	*Michigan.*
Seltzer, Bert,	*Illinois.*
Siebel, Ewald Hugo,	*Illinois.*
Silver, Emile,	*Illinois.*

Simons, Elden M,	*Michigan.*
Sneyd, Joseph Edward,	*Illinois.*
Solomon, Leo Kleinert,	*Illinois.*
Spangler, Newton Light,	*Pennsylvania.*
Stamm, Wenzel Alfred,	*Wisconsin.*
Stimson, Charlotte Elizabeth,	*Illinois.*
Susa, Joseph James,	*Illinois.*
Tether, Theodore Mason,	*Michigan.*
Trout, William,	*Indiana.*
Valbracht, Harry Daniel,	*Illinois.*
Vincent, Phillip Darius,	*Iowa.*
Ware, Frank Munson,	*Illinois.*
Warhanik, Alvernon Frank,	*Illinois.*
Webster, Charles Jeremiah,	*Illinois.*
Weible, Alfred Tennyson,	*Illinois.*
Welcome, Jacob Charles,	*Oregon.*
Wernli, Louis Samuel,	*Iowa.*
Weston, Willard,	*Illinois.*
Wulz, August Oscar,	*Illinois.*
Young, Wellington Wellesly,	*Iowa.*

SPECIALS

Fitzgerald, William Lydnes,	*Indiana.*
Geerlings, Isaac,	*Wisconsin.*
Xelowski, Thaddeus Zigismund, Ph.G. *(Chicago Coll. Pharmacy)*, 1896	*Illinois.*

PREPARATORY SCHOOL

Abbott, Ira Wilson,	*Danville.*
Alkire, Grace Ethel,	*Urbana.*
Alkire, Arthur Dwight,	*Urbana.*
Allen, John Newell,	*Hoopeston.*
Anderson, John William,	*Byron.*
Ashley, Burton Floid,	*Sibley.*
Baker, Charles Francis,	*Melrose.*
Barnett, Arthur,	*Hallsville.*
Bautz, Oscar Evans,	*Muncie.*
Bauer, Ralph Stanley,	*Champaign.*
Belknap, Henry Wales,	*Elgin.*
Biebinger, Marguerite,	*Milmine.*
Blanchard, Nathaniel Pearce,	*Champaign.*

Boulden, Darwin,	*Eddyville.*
Boyd, Laura Eunice,	*Palmer.*
Bragg, Lena May,	*DeLand.*
Buchanan, Gertrude,	*Urbana.*
Burrill, Mildred Ann,	*Urbana.*
Canton, Cecil Anthony,	*Beaver, Texas.*
Chance, Alonzo Roy,	*Urbana,*
Church, William Theodore,	*Jacksonville.*
Cline, James Stanley,	*Litchfield.*
Coe, John Edwin,	*Rochester.*
Coffman, Bertha J,	*Cisco.*
Coffman, Louie Mae,	*Cisco.*
Collins, Edra,	*Champaign.*
Conkling, Frank Koogler,	*Seymour.*
Conner, Thomas John Antoine,	*Prairie du Rocher,*
Coyle, John Frank,	*Penfield.*
Cutts, Emery,	*Lee.*
Damron, Charles Pleasant,	*Vienna.*
Daniels, Charles Edgar,	*Savoy.*
Day, Frederick Lathrop,	*Brimfield.*
Dempsey, David Ralph,	*Armington.*
Dickerson, George Hamm,	*Mahomet.*
Donoghue, William Joseph,	*LaSalle.*
Drummond, Roy,	*Fall Creek.*
Drury, Purne Omer,	*New Boston.*
Drury, Ralph Southward,	*New Boston.*
Eidmann, Gustav Herman,	*Mascoutah.*
Elkas, Isaac,	*Canton.*
Elliot, Roy G,	*Gilman.*
Ells, Burtis Claflin,	*Clarinda, Iowa.*
Fairchild, Sherman Dewitt,	*Sullivan.*
Farrin, William Otis,	*Cairo.*
Fisher, Clara Edna,	*Mahomet.*
Fiske, Charles Wesley,	*Mansfield.*
Fiske, Clarence Wilson,	*Sterling.*
Forbes, Marjorie Douglas,	*Urbana.*
Freeman, Roy Clinton,	*Homer.*
Gaffin, Charles Harold,	*Leaf River.*
Gardner, Eva,	*Blason.*
Gaston, David Newton,	*Tranquility, Ohio.*
Gates, Leslie Owen,	*Tuscola.*

Gibbs, Charlotte Mitchell,	*Riverton, Ky.*
Gibbs, Elizabeth Haywood,	*Riverton, Ky.*
Green, Carrie Elizabeth,	*Cherokee, Iowa.*
Grindley, Joseph Robert,	*Thomasboro.*
Harbeson, Davis Lawler,	*Cincinnati, Ohio.*
Harrington, Theodore G,	*Delavan.*
Harris, Estella,	*Modesto.*
Harris, Phil Baker,	*Quincy.*
Harrison, William Cullen,	*Ivesdale.*
Haüssler, Robert Edward,	*Centralia.*
Hecox, Roy,	*Champaign.*
Heffington, Roland,	*Batchtown.*
Howard, Lida Frances,	*Urbana.*
Howard, Wallace Lawton,	*Sheffield.*
Howe, John William,	*Cairo.*
Howe, Ralph Barnard,	*Urbana.*
Howell, Carrie Barnes,	*Champaign.*
Hulit, Clement Wilson,	*Canton.*
Jacobs, Manuel Joseph,	*Chicago.*
Johnsen, Charles William,	*Rankin.*
Jones, Edward James,	*Secor.*
Kuecken, Adolph Harry,	*Chicago.*
Kelso, Curtis Elmer,	*Thomasboro.*
Keusink, Wilhelmina Minnie,	*Champaign.*
Keusink, William,	*Champaign.*
Kilbury, Asa,	*St. Joseph.*
Kimmel, Howard Elihu,	*DuQuoin.*
Kincaid, Anna Laura,	*Athens.*
Kirby, Nellie Maye,	*Monticello.*
Knight, Albert Owen,	*Armstrong.*
Kofoid, Reuben Nelson,	*Normal.*
Linder, Elisha,	*Mattoon.*
Long, Troy Lovell,	*Morrisonville.*
Love, George Washington,	*Danville.*
McClure, Edgar Bradfield,	*Harrisonville, Ohio.*
McNeill, Jennie,	*Ficklin.*
McShane, John James Hugh,	*Ivesdale.*
Mahan, Jennie Mat,	*Chicago.*
Manning, Lewis LeRoy,	*St. Louis, Mo.*
Martin, James Walter,	*Wilmington.*
Matthews, Frederick Webster,	*Carlinville.*
Miner. Clement Leone	*Winchester.*

Mowry, Mary Adah,	*Champaign.*
Mulvany, Thomas James,	*Jesup, Iowa.*
Mulligan, Frank,	*Kewanee.*
Nebeker, Milo Washington,	*Davenport, Iowa.*
Noble, Ernest Henry,	*Brocton.*
Onken, Louis Ernest,	*Harpster.*
Osterwig, Kinnie Adolph,	*Lee.*
Outhouse, Fred Myeine,	*Lily Lake.*
Parker, Robert Burns,	*Robinson.*
Parker, Roy Sheldon,	*Toluca.*
Pearce, Joseph Albert,	*Carmi.*
Perrigo, Lyle Donovan,	*Urbana.*
Prehm, Walter Fred,	*Chicago.*
Pritchard, Frank Preston,	*Broadlands.*
Pritchard, Ordie E,	*Newport, Ind.*
Quayle, Henry Joseph,	*Bondville.*
Ricker, Ethel,	*Urbana.*
Rose, Fred Wayland,	*Mazon.*
Ross, Robert Malcom,	*Chicago.*
Saunders, Thomas Earle,	*Ridge Farm.*
Schmalhausen, Louie Richard,	*Charleston.*
Scott, Philip Collins,	*Kempton.*
Settlemire, David Pearson,	*Litchfield.*
Sheppard, Hallie,	*Paris.*
Silliman, Guy Alexander,	*Carmi.*
Simpson, Clarence Oliver,	*Hindsboro.*
Smith, James Howard,	*Sidney.*
Smith, Obed Moses,	*Elburn.*
Smith, Roy,	*Colusa.*
Snyder, Bertren Eugene,	*Dalton City.*
Snyder, Elizabeth Vemba,	*Moweaqua.*
Sparks, Annie Elnora,	*Urbana.*
Spence, Will Potter,	*Macomb.*
Stahl, Garland,	*Elkhart.*
Stelle, Raleigh Benton,	*McLeansboro.*
Stinnett, Fred Welbourne,	*Carmi.*
Stone, Walter W,	*Mason City.*
Swanson, Charles Adolph,	*New Windsor.*
Switzer, Ernest Absalom,	*Farina.*
Thomas, Edgar Conrad,	*Newman.*
Thompson, Clarence,	*Champaign.*
Thompson, George Palmer,	*Steward.*

Thornton, Joseph James,	*Magnolia.*
Tobin, Louis Michael,	*Urbana.*
Tomlin, Milton Dell,	*Easton.*
Toops, Claude,	*Champaign.*
Tucker, Gertie Oakland,	*Urbana.*
Tucker, Walter Clifford,	*Brimfield.*
Tuthill, Lewis Butler,	*Anna.*
Vandeventer, Lloyd Thomas,	*Mt. Sterling.*
Walker, Louis Alfred,	*Ravenswood.*
Ward, Robert Russell,	*Benton.*
Watts, Anna Lyle,	*Fairland.*
Webber, Pearl,	*Urbana.*
Whitaker, George Hall,	*Davenport, Iowa.*
Whitney, Jay Asa,	*Lostant.*
*Wildman, Freeman,	*Atwood.*
Williams, Harry Clyde,	*Charleston.*
Williams, Simon,	*Illiopolis.*
Wilson, Nancy Maud,	*Guthrie,*
Wilson, William Andrew,	*Rosemond.*
Wingate, Bertha Thomas,	*Lovington.*
Wolf, Arthur Alfred,	*Farina.*
Woods, Riley Fassett,	*LaMoille.*
Wright, Lora,	*Urbana.*
Yates, Irving Brown,	*Dunlap.*
Youle, Claude M,	*Saybrook.*
Youle, Floyd Quincy,	*Saybrook.*
Zilly, Alice Rachael,	*Champaign.*

SPECIALS IN MUSIC

Besore, Hazel,	*Urbana.*
Bradley, Gertrude Gailress,	*Champaign.*
Breckenridge, Blanche Fargason,	*Urbana.*
Burrill, Irene Elsa,	*Urbana.*
Campbell, Luretta Beatrice,	*Champaign.*
Clark, Lorin,	*St. Joseph.*
Coar, Marjorie Belle,	*Urbana.*
Davidson, Hazel Frances,	*Champaign.*
Hanson, Mabel Irene,	*Urbana.*
Harp, Edith Lyle,	*Champaign.*
Harp, Katherine,	*Champaign.*
Laflin, Mary Elizabeth,	*Champaign.*
Steele, Eugene,	*Sidney.*

*Deceased.

SUMMARY OF STUDENTS, 1898-99

	Men.	*Women.*	*Total.*
GRADUATE SCHOOL	49	9	58
COLLEGES—			
Seniors	88	31	119
Juniors	95	37	132
Sophomores	133	33	166
Freshmen	196	52	248
Specials	68	76	144
Total	629	238	867
STUDENTS AT BIOLOGICAL STATION	11	4	15
WINTER SCHOOL IN AGRICULTURE	26	...	26
LAW SCHOOL—			
First year	33	1	34
Second year	27	1	28
Third year	2	...	2
Specials	7	...	7
Total	69	2	71
SCHOOL OF MEDICINE—			
Seniors	118	7	125
Juniors	107	6	113
Sophomores	98	7	105
Freshmen	96	7	103
Specials	60	8	68
Total	479	35	514
SCHOOL OF PHARMACY—			
Seniors	55	2	57
Juniors	93	5	98
Specials	3	...	3
Total	151	7	158
PREPARATORY SCHOOL	132	47	179
	1,497	333	1,830
Deduct counted twice	5	1	6
Total in University	1,492	332	1,824

DEGREES

Commencement Day, June 8, 1898, degrees were conferred as follows:

A.B.

D Edythe Beasley
William Wesley Black
Lee Byrne
William Wagner Dillon
Delbert Riner Enochs
Rollin Orlando Everhart
Fred Gates Fox
Alice Belle Frazey
William John Fulton
Fred Silvey Hall
Georgia Etherton Hopper
Leone Pearl House
Helen Jordan
Caroline Lentz
Joseph Hunter Marshutz
Edward Frederick Nickoley
Reed Miles Perkins
Cicero Justice Polk
William Vipond Pooley
Lewis Archibald Robinson,
Stanley Livingston Soper,
Joseph Clarence Staley
Guy Andrew Thompson
William Luther Unzicker,
Rufus Walker, Jr.
Sarah Emeline Webster
Lewis Forney Wingard
Minnie Barney Woodworth

B.S.

Philip Judy Aaron
Clark Godfrey Anderson
Jay Jennings Arnold
Fred Clarkson Beem
Erwin Howard Berry
Henry Cyrille Breidert
Lyle Ireneus Brower
Edwin Ladue Brockway
Guy Jacob Chester
Charles Albert Clark
Charles Richard Clark
Thomas Wiley Clayton
Edgar Francis Collins
Harry Clay Coffeen
Wallace Craig
Arthur R Crathorne
Chester Morton Davison
James Harvey Dickey
Harry Edwards Eckles
Claude Douglas Enochs,
Louis Engelmann Fischer
Stuart Falconer Forbes
Arthur Edwin Fullenwider
Henry Anthony Goodridge
Charles Ernest Hair
Morgan J Hammers
Thomas Milford Hatch
Don Hays
Arthur Burton Hurd
Albert Fred Kaeser
Nellie Ione Kofoid
Francis David Linn
Albert Carl Linzee
Charles James McCarty
Harry Monroe May
Henry Fleury Merker

Frederick Alexander Mitchell
Grace Eliot Morrow
John William Musham
Herbert John Naper
Andrew Henry Neureuther
John Nevins
Frederick William von Oven
Henry Mark Pease
George Joseph Ray
Ora M Rhodes
Rome Clark Saunders
Archibald Dixon Shamel
Albert Louis Thayer
Ferdinand Frederick Emil Toenniges
Charles Albert Walter
Joshua Percy Webster
Clyde Leigh Wetzel
Allison James Wharf
Albert St. John Williamson
Frederick Henry Wilson
James Thompson Wolcott
David Couden Wray
Herman Louis Wuerffel

LL.B.

Louis Maxwell Kent
Andrew Jackson Kuykendall
Roy Verner Spalding
George Bedell Worthen

B.L.S.

Grace Osborne Edwards

Ph.C.

Charles Albert Walter

A.M.

David Hobart Carnahan
Martha Jackson Kyle
William Grant Spurgin

M.S.

James Ansel Dewey
Adolph Hempel
George David Hubbard
Arthur Ernest Paul
Frederick William Schacht

M.L.

Nathan Austin Weston

M. Arch.

George Wesley Bullard

C.E.

Albert Claude Hobart

M.E.

Frank Lyman Busey

At the Commencement of the School of Medicine, April 19, 1898, degrees were conferred as follows:

M.D.

Victor V. Bacon
Henry Lester Baker
Walter S. Bebb
William Belitz
James M. Beveridge
M. Arista Bingley

David A. T. Bjorkman
Fred Hamilton Blayney
Darwin E. Brown
William Flocton Brownell
Jacob Bursma
J. Baptist Butts
Emery Marcus Byers
Leo L. Cahill
Bert Mather Carr
Amos Foster Conard
Frank Howard Conner
George E. Coon
John Francis Corbin
Alfred C. Crofton
Ira Hugh Dillon
Aloysius N. J. Dolan
William Tecumseh Dowdall
Robert Emmerson
Francis Sebastian Feeney
Bartholomew F. Flanagan
Geoffrey J. Fleming
Marcus Samuel Fletcher
Ward Redfield Ford
Amandus Ulysses Fuson
Samuel Carson Garber
Henry Bernard Graeser
Hugh Martin Hall
Thomas J. Hambley
Eunice Bertha Hamill
William Ernest Hart
George B. M. Hill
H. C. Homer
Martin Luther Hooper
John Henry Hovenden
Ernest Alexander Hunt
Charles Ellsworth Husk
Charles Stuart Hutchinson
Wentworth Lee Irwin
Simeon Ryerson Johnson
Felix T. Kalacinski
Oliver T. Kemp
Clarence Bruce King
Benjamin F. Kirkland
Charles Albert Kittredge
Eugene Colburn Knight
Arvid Ernest Kohler
Frank Benson Lucas
Elijah A. Lyon
Matthew E. McManes
Thomas Ulysses McManus
A. Baxter Miller
Patrick Robert Minahan
John Arthur Mutchler
John Stephen Nagel
James M. Neff
George F. Newhall
Timothy Van Buren Overton
Addison C. Page
Otto Hugo Pagelsen
William Robert Pennington
William Petersmeyer
Jennie Lind Phillips
Stephen Roman Pietrowicz
Fred D. Pratz
Charles P. Proudfoot
William Abraham Purington
Henry Courtland Rogers
Roy Allen Roszell
George Rubin
Paul Sheldon Scholes
Henry G. Schuessler
Franz F. H. Schuldt
Wesley Morley Sherin
Austin Ulysses Simpson
Charles E. Simpson
Daniel Gilmore Simpson
John H. Slater
Emanuel Frank Snydacker
George H. Sollenbarger
Harry Randolph Spickermon
William H. Stayner
William J. Steele

Bayard Taylor Stevenson
Carl Downer Stone
William Truman Stone
Charles Frederick Stotz
Henry J. Swink
William H. Vary
Olander E. Wald
William Godfrey Wegner
Willibald John Wehle
David Gillison Wells
Charles Franklin Whitmer
Frank B. Whitmore
Eugene D. Whitney
Louis G. Witherspoon
Milton Cyrus Wolf
John Jacob Wuerth
George Van Wyland
Charles Ira Wynekoop

At the Commencement of the School of Pharmacy, April 21, 1898, degrees were conferred as follows:

Ph.G.

Joseph Samuel Ashmore
George William Atzel
John Bakkers
Herbert Arthur Bauer
William Townzen Bowman
Bert Lemon Brenner
Harry Alexander Clark
Samuel Bricker Donaberger
Arthur Wardo Freeman
Andrew Hope Harris
William Frederick Herrmann
Axel Sanfred Holmsted
Hugh Benton Honens
Clyde Ernest Huddleston
George Jacob Kappus
Joseph Robert Kloppenburg
William Gabriel Joseph Kops
Ernest August Koropp
Bohumil Lauber
Bertram Maier
Otto Herman Mentz
Algy Charles Moore
Edward Paul Albert Neverman
Egil Thorbjorn Olsen
Charles Francis Rainey
Charles Theodore Frederick William Ruhland
Ziska Erhart Schuetz
Emil Henry Schultz
Frank Siedenburg
William Smale
Maximilian Sobel
William Stroetzel
Charles Reuben Thompson
Charles Augustus Warhanik
Mark Henry Watters
Henry Weigand, Jr.
Paul Harry Wiedel

Ph.C.

Charles Everett Jones

Honorary Degrees

Ph.M.

Nicholas Gray Bartlett
Henry Biroth
Ezekiel Herbert Sargent

HOLDERS OF SCHOLARSHIPS, PRIZES, AND COMMISSIONS

HONORARY SCHOLARSHIPS

Cook,	Barrett, George F.
Kendall,	Seely, Garrett T.
LaSalle	Clifford, Charles L.
Marshall,	Ponzer, Ernest W.
Ogle	Woolsey, Lulu C.
Whiteside,	Bradley, James C.
Williamson,	Capron, Clyde.
Winnebago,	Temple, Harry E.
Woodford,	Ray, Walter T.

STATE SCHOLARSHIPS

Bond,	Wolleson, Herbert.
Bureau,	Cook, William A.
Carroll,	Franks, Charles W.
Champaign,	Hartwick, Louis E.
Champaign,	Black, Alice M.
Champaign,	Draper, Charlotte E.
Christian,	DeMotte, Ruby Thorne.
Coles,	Frost, Frank G.
Cook, Fourth Senatorial District,	Greene, Charles T.
Cook, Fifth Senatorial District,	Schroeder, Curt A.
Cook, Ninth Senatorial District,	Rudnick, Paul F. A.
Cumberland,	Lindley, Walter C.
DeKalb,	Radley, Guy R.
DeWitt,	Tull, Effie M.
Douglas,	Boyd, John W.
DuPage,	Hinckley, Geo. C.
DuPage,	Farrar, Floyd J.
Edgar,	Thompson, McDonald.
Ford,	Barr, John.
Fulton,	Dobbins, Lester C.
Fulton,	Whitehouse, Edith U.
Iroquois,	Pletcher, Nuba M.
Iroquois,	Newton, Fred E.
Jo Daviess,	Doty, Lee B.

Kane,	Hoppin, Charles A.
LaSalle,	Olson, Joseph M.
Lee,	Burnham, Edna S.
McHenry,	Gilkerson, Aletha,
McLean,	Hartrick, D. Clara,
McLean,	Reardon, Neal D.
Macon,	Woods, William T.
Macon,	Lytle, Ernest B.
Macoupin,	Otwell, Allen M.
Madison,	Roa, William J.
Montgomery,	Barry, George R.
Montgomery,	DeMotte, Roy J.
Moultrie,	Harshman, Lucius R.
Ogle,	Brayton, Louis F.
Ogle,	Waterbury, Leslie A.
Piatt,	Mitchell, Annie.
Piatt,	Hinkle, Ida M.
Piatt,	Dawson, Charles H.
Pope,	Bell, Arthur T.
St. Clair,	Updike, Hector,
Sangamon,	Marsh, Albert L.
Stark,	Stewart, Miles V.
Stark,	Berfield, Clyde,
Stephenson,	Fisher, John W.
Tazewell,	Zipf, Ferdinand.
Vermilion,	Hayes, Z. Bernice.
Vermilion,	Stanley, Otis O.
Warren,	Malcolm, Charles W.
Whiteside,	Warner, Harry J.
Will,	Reeves, George I.

CHICAGO CLUB LOAN FUND

Mesiroff, Josef.

WINNER OF HAZELTON PRIZE MEDAL

Fullenwider, Thomas Irvin.

COMMISSIONS AS BREVET CAPTAIN ILLINOIS NATIONAL GUARD, ISSUED BY THE GOVERNOR IN 1898

Arthur R. Crathorne, Delbert R. Enochs, Harry M. May, Ora M. Rhodes, Albert S. Williamson, Herman L. Wuerffel.

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Learning and Labor

CATALOG

OF THE

UNIVERSITY OF ILLINOIS

(POSTOFFICE, CHAMPAIGN OR URBANA, ILL.)

1899-1900

URBANA, ILLINOIS
PUBLISHED BY THE UNIVERSITY
1900

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THE UNIVERSITY CALENDAR

1900–1901

Sept. 13, 1900 to Jan. 31, 1902.

FIRST SEMESTER

1900.	
Sept. 13, Thursday.	Entrance Examinations begin.
Sept. 17, 18, Monday and Tuesday.	Registration Days.
Sept. 19, Wednesday.	Instruction begins.
Nov. 5, Monday.	Latest date for Announcing Subjects of Theses.
Nov. 29, Thursday.	Thanksgiving Day.
Dec. 22, Saturday.	Holiday Recess begins.
1901.	
Jan. 7, Monday.	Instruction resumed.
Feb. 1, Friday.	First Semester ends.

SECOND SEMESTER

Feb. 4, Monday.	Registration Day.
Feb. 5, Tuesday.	Instruction begins.
Feb. 18, Monday.	Prize Debate.
May 15, 16, 17, Wednesday evening to Friday evening.	University High School Conference and Interscholastic Oratorical Contest.
May 17, Friday afternoon.	University High School Conference.
May 17, Friday evening.	Interscholastic Oratorical Contest.
May 17, 18, Friday and Saturday.	Public School Art Exhibit.
May 18, Saturday.	Interscholastic Athletic Meet.
May 27, Monday.	Hazelton Prize Drill.
May 28, Tuesday.	Competitive Drill.
May 31, Friday.	Latest Day for Acceptance of Theses.

June 9, Sunday.	Baccalaureate Address.
June 10, Monday.	Class Day.
June 11, Tuesday.	Alumni Day and Oratorical Contest.
June 12, Wednesday.	Thirtieth Annual Commencement.

FIRST SEMESTER

Sept. 11, 1901, Wednesday.	Entrance Examinations begin.
Sept. 16, 17, Monday and Tuesday.	Registration Days.
Sept. 18, Wednesday.	Instruction begins.
Nov. 4, Monday.	Latest date for Announcing Subjects of Theses.
Nov. 28, Thursday.	Thanksgiving Day.
Dec. 21, Saturday.	Holiday Recess begins.
1902.	
Jan. 6, Monday.	Instruction resumed.
Jan. 31, Friday.	First Semester ends.

1900

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UNIVERSITY OF ILLINOIS

LOCATION

The University of Illinois is situated in Champaign County, in the eastern central part of the state between the cities of Champaign and Urbana, within the corporate limits of the latter. It is one hundred and twenty-eight miles south of Chicago, at the junction of the Illinois Central, the Cleveland, Cincinnati, Chicago and St. Louis, and the Wabash railroads. The country around is a rich and prosperous agricultural region. The cities of Urbana and Champaign have a combined population of about 15,000.

HISTORY

In 1862 the national government donated to each state in the Union public land scrip in quantity equal to 30,000 acres for each senator and representative in congress; "for the endowment, support, and maintenance of at least one college, whose leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts * * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

On account of this grant the state pays the University, semi-annually, interest at the rate of five per cent. on about $495,000, and the University owns about 8,500 acres of unimproved land, worth, approximately, $100,000.

To secure the location of the University several counties entered into competition by proposing to donate to its use specified sums of money, or their equivalent. Champaign County offered a large brick building in the suburbs of

Urbana, erected for a seminary and nearly completed, about 1,000 acres of land, and $100,000 in county bonds. To this the Illinois Central Railroad added $50,000 in freight. The General Assembly accepted this offer May 8, 1867.

The state has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property and assets is estimated at $1,600,000.

The institution was incorporated February 28, 1867, under the name of the Illinois Industrial University, and placed under the control of a Board of Trustees, constituted of the Governor, the Superintendent of Public Instruction and the President of the State Board of Agriculture, as *ex-officio* members, and twenty-eight citizens appointed by the Governor. The chief executive officer, usually called President, was styled Regent, and was made *ex officio* a member of the board, and presiding officer both of the Board of Trustees and of the Faculty.

In 1873 the Board of Trustees was reorganized, the number of appointed members being reduced to nine and of *ex-officio* members to two—the Governor and the President of the State Board of Agriculture. In 1887 a law was passed making membership elective, at a general state election, and restoring the Superintendent of Public Instruction as an *ex-officio* member. There are, therefore, now three *ex-officio* members and nine by public suffrage. Since 1873 the President of the Board has been chosen by the members from among their own number for a term of one year.

The University was opened to students March 2, 1868, when there were present, beside the Regent, three professors and about fifty students. During the first term another instructor was added, and the number of students increased to 77—all young men.

During the first term instruction was given in algebra, geometry, physics, history, rhetoric, and Latin. Work on the farm and gardens or about the buildings was at first compulsory for all students, but in March of the next year

compulsory labor was discontinued, save when it was made to serve as a part of class instruction. A chemical laboratory was fitted up during the autumn of 1868. Botanical laboratory work began the following year. In January, 1870, a mechanical shop was fitted up with tools and machinery, and here was begun the *first shop instruction* given in any American university. During the summer of 1871 the present Wood Shops and Testing Laboratory was erected and equipped for students' shop work in both wood and iron.

By vote, March 9, 1870, the Trustees admitted women as students. During the year 1870-71 twenty-four availed themselves of the privilege. Since that time they have constituted from one-sixth to one-fifth of the total number of students.

By the original state law certificates showing the studies pursued and the attainments in each were given instead of the usual diplomas and degrees. The certificates proved unsatisfactory to the holders, and in 1877 the legislature gave the University authority to confer degrees.

In 1885 the legislature changed the name of the institution to the "University of Illinois."

During the same session of the legislature a bill was passed transferring the *State Laboratory of Natural History* from the Illinois State Normal University to the University of Illinois. This Laboratory was created by law for the purpose of making a natural history survey of the state, the results of which should be published in a series of bulletins and reports, and for the allied purpose of furnishing specimens illustrative of the flora and fauna of the state to the public schools and to the state museum. For these purposes direct appropriations are made by the legislature from session to session. A large amount of material has been collected and extended publications have been made in both the forms above mentioned.

By an act approved March 2, 1887, the national government appropriated $15,000 per annum to each state for

the purpose of establishing and maintaining, in connection with the colleges founded upon the congressional act of 1862, agricultural experiment stations, "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." Under this provision the *Agricultural Experiment Station* for Illinois was placed under the direction of the Trustees of the University, and a part of the University farm, with buildings, was assigned for its use. At least one bulletin of results is published every three months, and the copies are gratuitously distributed over the state. Editions of 18,000 copies are now issued.

For the more complete endowment of the state institutions founded upon the act of 1862, the congress of the United States, by a supplementary law passed in 1890, made further appropriations. Under this enactment each such college or university received the first year $15,000, the second $16,000, and thereafter was to receive $1,000 per annum additional to the amount of the preceding year, until the amount reached $25,000, which sum was to be paid yearly thereafter.

The Chicago College of Pharmacy, founded in 1859, became the *School of Pharmacy of the University of Illinois* May 1, 1896. Its rooms are at 465 State Street, Chicago.

At the meeting of the Board of Trustees of the University held Dec. 8, 1896, upon recommendation of President Draper, the Trustees voted to take steps looking to the organization of a law school. Appropriations were made for salaries, for the purchase of books, and for incidental expenses. Pursuant to this action of the Board of Trustees, the *School of Law* was organized during the following spring and summer, and was opened Sept. 13, 1897. The course as originally planned covered two years, conforming to the existing requirements for admission to the bar in Illinois. The supreme court of the state, however, announced

in November following rules covering examinations for admission to the bar which made three years of study necessary, and the course of study in the Law School was immediately rearranged on that basis.

Negotiations looking to the affiliation of the College of Physicians and Surgeons, of Chicago, with the University, which had been going on for several years, were concluded pursuant to action taken by the Board of Trustees upon definite propositions submitted by the College of Physicians and Surgeons to the Board at its meeting of March 9, 1897. According to the agreement made, the College of Physicians and Surgeons became on April 21, 1897, the *College of Medicine of the University of Illinois.* The College is located at 813 W. Harrison Street, Chicago.

At the meeting of the Board of Trustees held April 22, 1897, the matter of the appointment of a librarian was considered by the Board and referred to a committee. This action of the Board was taken with the view of bringing to the University the School of Library Economy, which had been established in 1893 at the Armour Institute of Technology, in Chicago, and of securing the Director of that school for librarian of the University library. These plans were carried out and the *State Library School* was opened at the University in September, 1897.

BUILDINGS AND GROUNDS

The land occupied by the University and its several departments embraces about 210 acres.

The Chemical Laboratory is a building 75 by 120 feet, and two stories high, with basement. It contains general laboratories for students, instructors' laboratories, lecture rooms, store rooms, scale rooms, and various apartments for special purposes.

Engineering Hall has a frontage of 200 feet, a depth of 76 feet on the wings and 138 feet in the center. The first story contains the laboratories of the department of physics, the drafting seminary, and one of the recitation rooms of the

department of electrical engineering, and the masonry laboratories and instrument rooms of the department of civil engineering. The second story contains the lecture room and the preparation rooms of the department of physics, and the recitation and drawing rooms, cabinets, and studies of the departments of civil and municipal engineering, and the main office of the department of electrical engineering. The third story contains the elementary laboratory of the department of physics, the drawing rooms, lecture rooms, cabinets, and studies of the mechanical departments, as well as the library, the office, and the faculty parlor. The fourth story is devoted to the department of architecture, and contains drawing and lecture rooms, cabinets, a photo studio, and a blue-print laboratory.

The Wood Shops and Testing Laboratory is two stories high, 126 feet in length, and 88 feet in width, and contains the laboratory of applied mechanics, the hydraulic laboratory, and the wood shop on the first floor. The second floor is occupied by the *Men's Gymnasium.*

The Metal Shops is a one-story brick building, 50 by 250 feet. It contains a lecture room, two office rooms, a machine shop, a foundry, and a forge shop. The machine shop is 48 by 140 feet. Power is supplied by a 20 H. P. electric motor. A three-ton traveling crane of 12 foot span covers the center of the floor for the entire length, extending over a covered driveway between the machine shop and foundry.

The Mechanical and Electrical Engineering Laboratory is a pressed brick building, two stories high, 100 feet long and 50 feet wide, with a one-story wing 90 feet long and 50 feet wide. There is also a basement under the main part, containing some special testing rooms, store rooms, and the toilet and wash rooms.

The Central Heating Station is a brick building, 55 by 120 feet. It contains the apparatus used for heating the buildings on the campus. An annex contains the pump room and the stock room. The pipes of the heating system and the wires for power and light are carried from the

Central Heating Station to the several buildings through brick tunnels 6½ feet high by 6 feet wide. The length of tunnel thus far constructed is 1,800 feet.

The Armory, 100 by 150 feet, in one grand hall, gives ample space for company and battalion maneuvers and for large audiences upon special occasions.

Natural History Hall is 134 by 94 feet, with basement, two main stories, and an attic. It is occupied by the departments of botany, zoölogy, physiology, mineralogy, and geology, for each of which there are laboratories, lecture rooms, and offices; it also contains the office and equipments of the State Laboratory of Natural History, and of the State Entomologist, as well as the office, library, and chemical laboratory of the Agricultural Experiment Station. There are six laboratory rooms on each of the main floors—sufficient altogether to accommodate two hundred students, besides offering abundant facilities for the private work of the instructors.

The Astronomical Observatory is in the form of the letter T, the stem of which extends toward the south. The equatorial room, surmounted by the dome, is at the intersection of the stem and bar of the T. Besides the equatorial room the Observatory contains four transit rooms, a clock room, a recitation room, a study, and dark rooms for photographic purposes.

University Hall occupies three sides of a quadrangle, measuring 214 feet in front and 122 feet upon the wings. It is devoted almost exclusively to class rooms.

The Library Building is 167 by 113 feet, with a tower 132 feet high. The main floor contains the reference room, the reading room, the conversation room, the Library School lecture room, and the delivery room, which opens into the second story of the book-stack. The second floor contains the Library School class room, four seminary rooms, and the administrative offices of the University. The basement contains well lighted rooms, which are at present used for various purposes. The book-stack is a rear wing to the building,

separated from the rest of it by a fireproof wall. The stack will eventually contain five stories, and will accommodate 150,000 volumes. At present but three stories are fitted with shelving.

An Agricultural Building, costing $150,000, will be ready for occupancy September 1, 1900. It consists of four separate structures built around an open court and connected by corridors. The main building is 248 feet long, from 50 to 100 feet in depth and three stories high, and contains offices, class rooms, and laboratories for the departments of agronomy, animal husbandry, dairy husbandry, horticulture, and veterinary science; offices of the State Entomologist; the chemical laboratory of the Experiment Station; commodious administration rooms; an assembly room with a seating capacity of 500, and on each floor a fireproof vault for records. The other three buildings are each 45x116 feet and two stories high; one is for dairy manufactures, one for farm machinery, and one for veterinary science and stock judging. An adjacent glass structure serves the departments of agronomy and horticulture.

The building is of stone and brick, roofed with slate, and contains, all told, 113 rooms and a total floor space of nearly two acres.

There are, in addition to these buildings, a veterinary hall, four dwellings, three large barns, and a greenhouse.

THE GYMNASIUMS

The Men's Gymnasium is equipped with the latest appliances. There is an unobstructed floor space of 61 by 121 feet, properly lighted, heated, and ventilated. The building contains shower baths, needle bath, tub bath, lavatories, team rooms, lecture room, examination room, director's offices, and locker rooms. The gymnasium is open from 9 a. m. to 6 p. m., and from 7 to 9 p. m. The adjoining Illinois Field, 450 by 700 feet, containing a one-third-mile running and bicycle track, class and University foot-ball fields, and base-

ball diamond, serves well for all games, and upon it take place all the intercollegiate contests.

The Women's Gymnasium occupies very attractive quarters in Natural History Hall, and is fully equipped. The pastime grounds near by, in use through the year when the weather permits, have a sixteen-lap running track, eight tennis courts, two basket ball fields, and space for handball, hurdling, and other desirable amusements. Under suitable restrictions, at certain hours, the rooms are open for exercise to those who are not enrolled in the classes.

LABORATORIES

SCIENCE LABORATORIES*

The *botanical, geological, physiological, and zoölogical laboratories* are in Natural History Hall.

The *chemical laboratory* occupies the building of the same name, already described.

The *physical laboratory* is in Engineering Hall. It is provided with piers, a constant temperature room, and other conveniences for measurement work.

The *psychological laboratory*, in Natural History Hall, is well provided with apparatus of many different kinds for use in experimental study, research, and instruction.

ENGINEERING LABORATORIES

The *cement laboratory of* the department of civil engineering occupies rooms in Engineering Hall.

The *electrical engineering laboratory* occupies space on three floors of the Mechanical and Electrical Engineering Laboratory.

The *mechanical engineering laboratory* occupies the rear wing of the Mechanical and Electrical Engineering Laboratory.

The *laboratory of applied mechanics* is located in the Wood Shops and Testing Laboratory.

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* For a more detailed account of these laboratories, see under the appropriate College.

SPECIAL LABORATORIES FOR RESEARCH

The *chemical laboratory of the Agricultural Experiment Station* occupies a part of the basement of Natural History Hall, and the laboratory for the physical and bacteriological examination of soils is situated in the basement of University Hall, but both will be quartered in the Agricultural Building when it is completed.

The laboratory rooms of the *State Laboratory of Natural History* are in Natural History Hall.

A *Biological Station,* equipped for field and experimental work in aquatic biology, is maintained on the Illinois River by the State Laboratory of Natural History. It has its separate staff, but is open to students of the University at all times, on application, and during the summer months to special students not connected with the University.

A *laboratory for sanitary water analysis* has been equipped with all necessary appliances, and chemical investigation of the water supplies of the state is carried on.

COLLECTIONS*

AGRICULTURAL

A large room in University Hall is devoted to the exhibition of the products of the industrial arts, especially of agriculture. Prominent among the agricultural specimens exhibited is an excellent collection of the sub-species and varieties of Indian corn. There is also a collection of small grains and of grasses; a collection of fibers in various states of manufacture, and a large collection illustrating the forestry of Illinois, Florida, and California. The exhibits made by the University at the Centennial and at the Cotton Exposition at New Orleans find a permanent abode here; large additions have also been made of materials received from the Columbian Exposition of 1893.

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* For a more detailed account of the collections in the different departments, see the appropriate subject under each College.

BOTANICAL

The herbarium contains nearly all the species of flowering plants indigenous to Illinois, including a complete set of grasses and sedges. The flora of North America is fairly well represented, and a considerable collection of foreign species has been made. A collection of fungi includes a full set of those most injurious to other plants, causing rusts, smuts, molds, etc. A collection of wood specimens from two hundred species of North American trees well illustrates the varieties of native wood.

Plaster casts represent fruits of many of the leading varieties as well as interesting specimens of morphology, showing peculiarities of growth, effects of cross-fertilization, etc.

ENGINEERING

The following departments of the College of Engineering have made extensive and valuable collections, which will be found in rooms in Engineering Hall:

ARCHITECTURE

A large number of specimens of stone, bricks, terra cotta, sanitary fixtures, casts of moldings and of ornament have been accumulated, together with some excellent specimens of industrial arts, models of structures, working drawings of important buildings, 3,000 lantern slides, 20,000 plates and photographs, and an excellent working library.

CIVIL ENGINEERING

The civil engineering department has a large room containing samples of iron, steel, wood, brick, and stone; materials for roads and pavements; models of arches and trusses, one of the latter being full-sized details of an actual modern railroad bridge. The department also possesses a very large collection of photographs and blue-print working drawings of bridges, metal skeleton buildings, masonry structures, and standard railroad construction.

ELECTRICAL ENGINEERING

The department has a collection of samples illustrating standard practice in the industrial applications of electricity. There is also a rapidly growing collection of lantern slides, photographs, blue-prints, drawings, pamphlets, and other engineering data.

MECHANICAL ENGINEERING

This department has among other things a partial set of Reuleaux models, together with models of valve gears, sections of steam pumps, injectors, valves, skeleton steam and water gauges, standard packings, steam-pipe coverings, and drop forgings. There are also fine examples of castings, perforated metal, defective boiler plates, and sets of drills, with numerous samples of oil, iron, and steel. A large number of working drawings from leading firms and from the United States Navy Department forms a valuable addition to the above collections.

GEOLOGICAL

Lithology is represented by type collections of rocks (5,500 specimens), arranged to illustrate Rosenbusch; from Voigt and Hochgesang, L. Eger, and A. Kranz; a type collection from Ward; 745 thin sections of rocks and minerals; a large number of ornamental building stones; a stratigraphic collection to illustrate Illinois geology, and a collection of Illinois soils (104).

The *mineralogical* collection is especially rich in rock-forming minerals, ores, and materials of economic value. It contains over 10,900 specimens carefully selected to meet the wants of the student, and 575 crystal models.

The *paleontological* collection (45,000 specimens) contains representative fossils from the entire geologic series. It embraces the private collections of A. H. Worthen (including 742 type specimens); Tyler McWhorter; Mr. Hertzer; 200 thin sections of corals; the Ward collection of casts, and a considerable number of special collections representing the fauna and flora of particular groups.

ZOÖLOGICAL.

The *zoölogical* collections have been specially selected and prepared to illustrate the courses of study in natural history, and to present a synoptical view of the zoölogy of the state.

The mounted mammals comprise an unusually large and instructive collection of the ruminants of our country, including male and female moose, elk, bison, deer, antelope, etc., and also several quadrumana, large carnivora and fur-bearing animals, numerous rodents, good representative marsupials, cetaceans, edentates, and monotremes. Fifty species of this class are represented by eighty specimens and all the orders, excepting the Proboscidea, are represented by mounted skeletons. There is also a series of dissections in alcohol, illustrating the comparative anatomy of the group.

The collection of mounted birds includes representatives of all the orders and families of North America, together with a number of characteristic tropical, Bornean, and New Zealand forms. The collection is practically complete for Illinois species. There is also a fine collection of the nests and eggs of Illinois birds. A series of several hundred unmounted skins is available for the practical study of species, and the internal anatomy is shown in alcoholic dissections and in mounted skeletons of all the orders.

The cold-blooded vertebrates are represented by a series of mounted skins of the larger species, both terrestrial and marine; mounted skeletons of typical representatives of the principal groups; alcoholic specimens, both entire and dissected, and casts. The alcoholics include series of the reptiles, amphibians, and fishes, the latter comprising about three hundred species. The dissections illustrate the internal anatomy of the principal groups. The casts represent about seventy-five species, nearly all fishes.

The Mollusca are illustrated by alcoholic specimens of all classes and orders, and dissections showing the internal anatomy of typical forms. There are several thousand shells

belonging to seventeen hundred species. The collection of Illinois shells is fair but incomplete.

Of the Arthropoda the entomological cabinet contains about three thousand species (principally American), named, labeled, and systematically arranged. There is also a series of Crustacea, some dried, but mostly in alcohol, the latter including a number of dissections.

The lower invertebrates are represented by several hundred dried specimens and alcoholics, and by a large series of the famous Blaschka glass models.

The embryology of vertebrates and invertebrates is illustrated by a set of Ziegler wax models, and several series of slides, sections, and other preparations.

In addition to the above, the extensive collections of the State Laboratory of Natural History are available for illustrative purposes, as well as for original investigation by advanced students.

ART GALLERY

The University art gallery was the gift of citizens of Champaign and Urbana. It occupies a room in the basement of Library Building, and furnishes an excellent collection of models for students of art. In sculpture it embraces thirteen full-size casts of celebrated statues, forty statues of reduced size and a large number of busts and bas-reliefs, making in all over four hundred pieces. It includes also hundreds of large autotypes, photographs, and fine engravings, representing many of the great masterpieces of painting of nearly all the modern schools, and a gallery of historical portraits, mostly large French lithographs, copied from the great national portrait galleries of France.

Other collections of special value to art students embrace a large number of casts of ornament from the Alhambra and other Spanish buildings, presented by the Spanish government; a set of casts from Germany, illustrating German renaissance ornament; a series of art works from the Columbian Exposition; large numbers of miscellaneous

casts, models, prints, and drawings, such as are usually found in the best art schools, and a model in plaster and a complete set of drawings of a competitive design by Henry Lord Gay for a monument to be erected in Rome, commemorative of Victor Emanuel, first king of Italy.

LIBRARY FACILITIES

The *library* contains 44,000 volumes and 3,500 pamphlets. The reading room contains 411 periodicals. The library of the State Laboratory of Natural History and that of the Agricultural Experiment Station contain about 9,500 volumes and 17,000 pamphlets. Both these libraries are open to students of the University.

The Public Library of the City of Champaign has recently become the possessor of the valuable library of western history collected by the late Edward G. Mason, Esq., President of the Chicago Historical Society. The collection is thus made accessible to University students.

The library and the reading room are open every day, except Sunday, from 8 a. m. until 5 p. m., and from 6:30 p. m. until 9 p. m. on Mondays, Tuesdays, Wednesdays and Thursdays.

ADMISSION

Applicants for admission to the freshman class must be at least sixteen years of age.

Entrance may be made at any time, provided the candidate is competent to take up the work of the classes then in progress; but it is better to begin upon the first collegiate day in September.

Admission to the freshman class of the University may be obtained in one of three ways: (a) by certificate from a fully accredited high school; (b) by examination; (c) by transfer of credits from some other college or university.

ADMISSION BY CERTIFICATE FROM ACCREDITED HIGH SCHOOLS

The University employs a high school visitor, whose business it is to inspect the high schools of the state. The University bears the expense of such inspection, but does not send the visitor to any school not already accredited until he receives from it a report with regard to the work it is doing which shows that its course of study is such in quantity and quality as to be worth the time and attention of the University. After inspecting a school the visitor reports upon it to the Faculty of the University, and upon approval the school is added to the list of accredited schools. Students coming to the University from an accredited school are excused from entrance examinations in those subjects which they have pursued there satisfactorily and which are accepted for admission to the University. The University accredits all work which is sufficiently well done. The schools in the list below are therefore not all accredited for the same amount and kind of work.

In all subjects required for admission to the University, other than those for which his school is accredited, the can-

didate for admission must pass an examination or take the work in the Preparatory School of the University.

Candidates for admission from accredited schools must file with the Registrar, upon entrance, a certificate of graduation and a certified list of the preparatory studies for which they received credit in the high school. Blanks for these certificates must be obtained from the Registar in advance, and it is better to forward them to him for approval before registration days.

LIST OF ACCREDITED SCHOOLS

School	Superintendent	Principal
Aledo	J. W. Collins	F. N. Taylor
Alton	R. A. Haight	J. E. Turner
Amboy	F. W. Dunlap	F. G. Fox
Anna	A. L. Bliss	John Pelley
Arcola	H. T. Wilson	Anna Rogers
Atlanta	H. H. Edmunds	Amelia Hochstein
Aurora (East)	C. M. Bardwell	W. C. Hazzard
Aurora (West)	A. V. Greenman	Katherine Reynolds
Batavia (East)	L. F. Wentzel	Josephine Burling
Beardstown	S. S. Beggs	H. J. Jockisch
Belleville	H. D. Updike	H. W. Brua
Belvidere (North)	Arthur J. Snyder	Flora Fellows
Belvidere (South)	Montgomery Moore	Mary Porteous
Bement	C. H. Andrews	Noah Young
Bloomington	E. M. VanPetten	E. L. Boyer
Blue Island	(Township High School)	J. E. Lemon
Burlington, Ia.	Francis M. Fultz	Maurice Ricker
Cairo	T. C. Clendenen	John Snyder
Camp Point	W. T. Jackson	W. T. Jackson
Canton	C. S. Aldrich	C. S. Aldrich
Carlinville	J. A. Wooters	Anna Hovine
Carlyle	E. E. VanCleve	W. H. Pyle
Carrollton	E. A. Thornhill	Ralph Holmes
Carthage	W. K. Hill	Rose Kirkpatrick
Centralia	J. L. Hughes	Ellen Sherman
Champaign	Joseph Carter	Lottie Switzer
Charleston	J. K. Stableton	Wm. Wallis

School	Superintendent	Principal
Chicago—		
Austin	E. Benjamin Andrews	F. W. Buck
Calumet	"	A. S. Hall
Englewood	"	J. E. Armstrong
English High and Manual Training	"	A. R. Robinson
Hyde Park	"	Chas. W. French
Jefferson	"	Chas. A. Cook
Lake	"	E. F. Stearns
Lake View	"	J. H. Norton
Marshall	"	L. J. Block
Medill	"	S. B. Sabin
North Division	"	O. S. Wescott
Northwest Division	"	F. P. Fisk
South Division	"	Spencer R. Smith
South Chicago	"	C. I. Parker
West Division	"	G. M. Clayberg
Chicago Heights	G. A. Hawkins	F. W. Schacht
Chicago Manual Training	H.H.Belfield, Director	
Chrisman	H. Gillespie	H. Gillespie
Clinton	E. B. Bentley	Jennie N. Good
Clinton, Ia.	O. P. Bostwick	E. L. Mason
Cobden	J. H. Jenkins	J. H. Jenkins
Danville	L. H. Griffith	B. D. Billinghurst
Davenport, Ia.	J. B. Young	W. D. Wells
Decatur	E. A. Gastman	Frank Hamsher
Delavan	F. L. Calkins	Stella Hoghton
Dixon (North)	H. V. Baldwin	Lydia Williamson
Dixon (South)	Chas. W. Groves	B. F. Bullard
Downer's Grove	O. M. Searles	Mabel Messner
Dubuque, Ia.	F. T. Oldt	F. L. Smart
Dundee	C. H. Watt	Lavina Moore
DuQuoin	D. B. Rawlins	Chas. Knapp
Dwight	G. W. Horton	Leila Britt
East St. Louis	John Richeson	C. L. Manners
Edwardsville	C. W.Parkinson	A. S. Boucher
Effingham	J. D. Foucht	S. W. Kincaid
Elgin	M. A. Whitney	E. J. Kelsey
Elmwood	L. E. Flanegin	Jeannette Munson

School	Superintendent	Principal
Evanston	(Township High School)	H. L. Boltwood
Evansville, Ind.	W. A. Hester	Robert Spear
Farmer City	C. C. Covey	James Raibourn
Farmington	H. L. Roberts	Elizabeth Williams
Freeport	R. S. Page	S. E. Raines
Fulton	W. A. Pratt	Mary Conrath
Galena	J. W. Cupples	J. W. Cupples
Galesburg	W. L. Steele	F. D. Thomson
Galva	F. U. White	Hedwig M. Maul
Geneseo	A. W. Hussey	G. A. Ketcham
Gibson City	R. G. Jones	H. W. Rudolph
Grand Prairie Seminary (Onarga)		F. C. Demorest
Greenfield	H. G. Russell	Mrs. H. G. Russell
Greenville	M. G. Clark	R. E. Holmes
Griggsville	H. G. McCarrel	Nora Simmons
Harvard	J. S. Brazier	Jennie McCampbell
Harvey	(Township High School)	J. E. Cable
Havana	J. R. Sparks	Mrs. S. E. Pierce
Henry	Wm. Calhoun	Emma Stone
Highland Park	(Township High School)	W. A. Wilson
Hillsboro	S. T. Robinson	W. T. Harris
Hinsdale	J. M. Frost	Mary MacNair
Hoopeston	S. A. D. Harry	Chas. F. Briscoe
Jacksonville	J. W. Henninger	H. S. Weston
Jerseyville	J. Pike	E. B. Shafer
Joliet	(Township High School)	J. Stanley Brown
Kankakee	F. N. Tracy	I. E. Neff
Keokuk, Iowa	O. W. Meyer	George E. Marshall
Kewanee	A. C. Butler	Allen C. Rearick
Lacon	Frank Wescott	Elsie Ewing
La Grange	(Township High School)	E. G. Cooley
Lanark	E. S. Hady	Margaret Traner
La Salle	(Township High School)	Chas. A. Farnam
Le Roy	B. C. Moore	Flora M. Grady
Lewistown	B. E. Nelson	Estelle Jones
Lexington	P. W. Dorsey	O. L. Barton
Lincoln	F. M. Richardson	Marion Lyons
Litchfield	R. C. Shelenbarger	O. W. Hoffman
Lockport	J. E. Hooton	W. F. Coolidge
Macomb	R. C. Rennick	R. C. Rennick

School	Superintendent	Principal
Marengo	M. A. Kline	Lillian Wherry
Marseilles	F. M. Kline	F. E. Whipple
Mattoon	B. F. Armitage	S. F. Smyser
McLeansboro	J. W. Barrow	Lydia Cotteral
Mendota (East)	W. R. Foster	Lillian Purkkiser
Mendota (West)	G. C. Griswold	Myra Howes
Metropolis	Edward Longbons	Clarence Bonnel
Moline	W. J. Cox	A. R. Crittenden
Monmouth	J. C. Burns	E. Sturtevant
Monticello	J. E. Webb	D. R. Enochs
Mound City	Paul E. Sabine	Mary Roberson
Mount Carmel	W. S. Booth	Kate Marsh
Mount Carroll	Ida M. Griggs	Mrs. Lillian Deming
Mount Vernon	J. T. Ellis	Inez I. Greene
Murphysboro	E. H. Rogers	E. J. Klemma
Newton	E. B. Brooks	Electa Ranson
Normal	E. A. Fritter	T. M. Birney
Oak Park	W. H. Hatch	C. J. Hanna
Olney	F. W. Wood	G. D. Wham
Oregon	W. J. Sutherland	Addie Steele
Ottawa	(Township High School)	J. O. Leslie
Pana	Wm. Miner	J. M. Martin
Paris	J. D. Shoop	Nelle McCarty
Paxton	O. J. Bainum	J. E. McKown
Pekin	O. A. Schotts	Elizabeth Chapman
Peoria	N. C. Dougherty	A. W. Beasley
Pittsfield	W. R. Hatfield	Angie F. Wood
Polo	S. M. Abbott	Julia M. Gay
Pontiac	(Township High School)	J. E. Bangs
Princeton	(Township High School)	D. O. Barto
Quincy	A. A. Seehorn	W. F. Geiger
Ridge Farm	J. H. Scrugham	J. F. Graham
Riverside	A. F. Ames	Joel S. Harley
Robinson	C. H. Neilson	O. R. Hedden
Rochelle	C. F. Philbrook	Georgia Bennett
Rockford	P. R. Walker	B. D. Parker
Rock Island	R. G. Young	J. F. Darby
Rossville	I. A. Smothers	C. N. Boord
Rushville	N. T. Veatch	Florence Young
St. Louis, Mo.	F. L. Soldan	W. J. S. Bryan

School	Superintendent	Principal
Salem	S. J. Curlee	Laura E. Meyers
Sandwich	W. W. Woodbury	Emma B. Campbell
Savanna	W. S. Wallace	C. N. Jenks
Shelbyville	G. P. Randle	R. J. Roberts
Southern Collegiate Institute (Albion)		Frank B. Hines
Sparta	S. B. Hood	L. J. Sexton
Springfield	J. H. Collins	L. M. Castle
Sterling	(Township High School)	O. L. Miller
Streator	(Township High School)	S. B. Hursh
Sullivan	E. A. Cross	Gertrude Neal
Taylorville	(Township High School)	W. E. Andrews
Terre Haute, Ind.	William Wiley	Charles Meek
Tuscola	Charles Ammerman	Jessie Ellars
Urbana	J. W. Hays	J. W. Hays
Vandalia	J. N. Street	J. G. Burnside
Vienna	M. N. McCartney	Nellie Perkins
Virden	M. J. Loveless	G. W. Bohannan
Washington	J. W. Hesler	Abbie L. Ross
Watseka	E. J. Blake	S. P. White
Waukegan	W. F. Cramer	Mariam Besley
Wenona	George W. Reid	Lucretia M. Smith
Western Military Academy (Upper Alton)		A. M. Jackson
Wheaton	J. B. Russell	W. T. Stebbins
Wilmington	F. M. Crosby	Helen Buss
Winchester	T. M. Jeffords	T. M. Jeffords
Woodstock	C. W. Hart	Grace Francisco
Wyoming	W. R. Sandham	W. R. Sandham
Yorkville	Herbert Bassett	Nannie S. Hill

ADMISSION BY EXAMINATION

Examinations of candidates for admission to the University are held at the University in September (see program, p. 53). Each candidate must be in attendance during the whole period of the examinations.

The scholarship examinations,* held each year on the first Saturday in June, in the several counties of the state, afford an opportunity to pass the entrance examinations

* See State Scholarships.

before coming to the University, since these examinations are taken as equivalents of the regular entrance examinations.

The subjects upon which the entrance examinations are held are described below.

Text-books are named merely to aid in showing the requirements. Equivalents are accepted.

In all cases 36 credits are required, the term credit meaning the work in one subject continuously pursued, with daily recitations, through one of the three terms of the high school year; or, in other words, the work of sixty recitation periods of forty minutes each, or the equivalent in laboratory or other practice. Of these 36 credits, 28 must be obtained by all candidates in the subjects, and according to the valuation, stated in the prescribed list given below.. The remainder of the 36 may be made up by offerings in any of the subjects in the elective list given below, with the following restrictions and provisions:

1. No offering will be accepted in any one of these elective subjects unless at least equal in quantity to the minimum specified in the table. For example: Astronomy is listed for from 1 to 1½ credits. Nothing less than one term's work, that is, one credit, will be accepted, therefore, in that subject.

2. Those who wish to enter upon the courses leading to the degree of bachelor of arts must offer at least three credits in some one foreign language, chosen from among the electives, in addition to the language chosen from among the prescribed subjects in the first list. The language from the elective list may or may not be the same as that offered in the prescribed list. Those who wish to pursue the study of Latin or Greek in the University must, however, offer nine credits in Latin or six in Greek, respectively.

3. Those who wish to enter upon the courses leading to the degree of bachelor of science, in any line of study except agriculture, must offer solid and spherical geometry among their electives.

4. For entrance upon the agricultural courses leading to

the degree of bachelor of science, *any* six credits from the elective list will be accepted instead of the six credits in foreign language; but at least two years of foreign language study in the University must be taken by those who make this option.

The amount of work in each subject which, in the judgment of the University authorities, corresponds to the minimum number of credits assigned is shown by the description of subjects below.

SUBJECTS ACCEPTED FOR ADMISSION, WITH CREDITS

Prescribed

Algebra	4 credits
English Composition	3 credits
English Literature	6 credits
French, or German, or Greek, of Latin*	6 credits
Plane Geometry	3 credits
History	3 credits
Physical or Biological Science	3 credits

Elective

Astronomy	1 to 1½ credits
Biology	3 to 6 credits
Botany	1½ to 3 credits
Chemistry	2 to 3 credits
Civics	1 to 3 credits
Drawing	1 to 3 credits
French	3 to 9 credits
Geology	1½ to 3 credits
Geometry, Solid and Spherical	1 credit
German	3 to 9 credits
Greek	3 to 7 credits
History	3 credits
Latin	3 to 12 credits
Manual Training	1 to 2 credits
Physics	3 credits
Physiography	1½ to 3 credits
Physiology	1 to 3 credits
Zoölogy	1½ to 3 credits

DESCRIPTION OF SUBJECTS ACCEPTED FOR ADMISSION

1. ALGEBRA.—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of exponents, and the analysis and solution of problems involving these.

* But see par. 4 above.

The subject as given in Wells's Higher Algebra through quadratic equations, or the same work in Wentworth's Algebra, or an equivalent.

2. ASTRONOMY.—To obtain a single credit for entrance in astronomy, the student must pass an examination covering as much text-book work as is contained in Young's Elements of Astronomy, Todd's New Astronomy, or Howe's Descriptive Astronomy. For 1½ credits, the entrance requirement implies, in addition to the above, some degree of practical familiarity with the geography of the heavens, with the various celestial motions, and with the positions of some of the more conspicuous naked-eye heavenly bodies.

3. BIOLOGY.—The subject as taught in good high schools with laboratory equipment. For the minimum number of credits, one year's work upon such types as are presented in Huxley and Martin's Practical Biology, or Parker's Elementary Biology. For further credits, advanced laboratory work and field collections. Note-books, drawings, collections of specimens, etc., showing work done, must be presented.

4. BOTANY.—A familiar acquaintance is required with the general structure of plants, and of the principal organs and their functions, derived to a considerable extent from a study of the objects; also a general knowledge of the main groups of plants, and the ability to classify and name the more common species. Bergen's Elements of Botany, or Spaulding's Introduction to Botany, indicates the kind of preparation required. Laboratory note-books and herbarium collections must be presented.

5. CHEMISTRY.—The instruction must include both text-book and laboratory work. The work should be so arranged that at least one-half of the time shall be given to the laboratory. The course, as it is given in the best high schools in two terms or three terms, respectively, will satisfy the requirements of the University for the two credits or three credits for admission. Remsen's Introduction to Chemistry, Storer and Lindsey's Manual of Elementary Chemistry, and Newth's Elementary Chemistry, are acceptable text-books. The laboratory notes, bearing the teacher's indorsement, must be presented in evidence of the actual laboratory work accomplished. Candidates for admission may be required to demonstrate their ability by laboratory tests.

6. CIVICS.—Such amount of study on the United States constitution, its history and interpretation, as is indicated by any of the usual high school text-books on civil government, is regarded

as sufficient for one term. The work may advantageously be combined with the elements of political economy, or, better, the industrial history of the country.

7. COMPOSITION AND RHETORIC.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of rhetoric. The candidate will be required to write two paragraphs of about one hundred and fifty words each to test his ability to use the English language. The subject as presented in Genung's Outlines of Rhetoric, Scott and Denney's English Composition, or an equivalent.

8. DRAWING.—Free-hand or mathematical drawing, or both. Drawing-books or plates must be submitted. The number of credits allowed depends on the quantity and quality of the work submitted.

9. ENGLISH LITERATURE.—(a) Each candidate is expected to have read certain assigned literary masterpieces, and will be subjected to such an examination as will determine whether or not he has done so. The books assigned for the next three years are as follows:

1900.—Dryden's Palamon and Arcite; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Lowell's Vision of Sir Launfal; Scott's Ivanhoe.

1901.—George Eliot's Silas Marner; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; Cooper's Last of the Mohicans; Tennyson's Princess; Shakspere's The Merchant of Venice; Scott's Ivanhoe.

1902.—The same as 1901.

(b) In addition to the above the candidate will be required to present a careful study of the history of either English or American Literature.

(c) The candidate will be examined on the form and substance of one or more books, in addition to those named under (a). For 1900, 1901, and 1902 the books will be selected from the lists below. The examination will be of such a character as to require a minute and thorough study of each of the works named, in order to pass it successfully.

1900.—Shakspere's Macbeth; Milton's Paradise Lost, Books I. and II.; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Tennyson's The Princess.

1901.—Shakspere's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison.

1902.—The same as 1901.

Two years of high school work, with five recitations per week, will be necessary for the above preparation.

10. FRENCH.—*One year's work.*—The candidate must have a thorough knowledge of elementary grammar and the irregular verbs; must be able to pronounce correctly, and to translate simple spoken French phrases. He must have read some 300 pages of easy prose, including one modern comedy, and must be able to translate ordinary French prose at sight.

Two years' work.—In addition to the above, the candidate must show proficiency in advanced grammar, the essentials of syntax, and elementary composition. The reading of not less than 400 pages of standard authors, including two plays of Molière, is required, and the memorizing of not less than six fables or anecdotes.

Three years' work.—In addition to what has already been described, the candidate must have had further work in composition, and must have memorized not less than six poems or anecdotes. He must further have read not less than 500 pages of standard authors, including Molière, La Fontaine, and Hugo. Some acquaintance with modern lyrics is necessary.

11. GEOLOGY.—Familiarity with the matter found in Scott's Introduction to Geology, or a real equivalent. The student must be able to recognize well-marked types of crystalline and fragmental rocks, and to explain the origin of the topography of the region in which he lives. Additional laboratory and field work will be given such credit as it merits.

12. GEOMETRY.—Plane Geometry, as given in Wells's or Wentworth's Geometry, or an equivalent. Great importance is attached to the ability of the student to solve original problems.

Solid and Spherical Geometry, as given in Wells's or Wentworth's Plane and Solid Geometry, or an equivalent.

13. GERMAN.—*One year's work.*—Elementary grammar, especially declension of articles and ordinary nouns and pronouns, use of the strong and the weak adjective, the two conjugations of verbs, with the principal parts and meanings of all the strong verbs, separable and inseparable prefixes, the use of common prepositions, the inverted and transposed sentence order. Practice in writing German sentences should accompany this work throughout the

course, but the German script is not insisted upon. Besides the work in grammar, the student should read not less than 150 pages of easy narrative or descriptive prose, giving careful attention to its translation into good English.

Two years' work.—In addition to the work outlined under the one year's requirement, the pupil should know the syntax of cases, uses of the subjunctive and infinitive, complex sentence structure, uses of modal auxiliaries and of participial constructions. The translation into German of about thirty-five pages of narrative prose should insure ready application of grammatical principles. As an additional reading requirement, from 250 to 300 pages, including one of Schiller's historical dramas, and about thirty pages of German lyrics, should be translated. Constant practice in reading German should secure an accurate pronunciation and a feeling of the rhythm and rhetorical form of the works studied.

Three years' work.—The third year's study should aim to secure an easy reading knowledge of the language. Accurate and idiomatic translations into English, constant practice in sight translation and in writing from dictation should be insisted upon. Standard prose of the grade represented by Heine, Freytag, or Dahn, not less than 100 pages should be read, together with selections from classic poetry. Lessing's Minna von Barnhelm and Goethe's Egmont or Iphigenie auf Tauris are especially recommended. Additional work in prose composition, or in the writing of paraphrases of the texts read, should insure the ability to write simple German.

14. GREEK.—To obtain three credits, the exercises in any of the beginning books, and one book of the Anabasis, or its equivalent, must be offered. For six credits, two books of the Anabasis and three of Homer, or their equivalents, additional to the above, must be presented, together with an amount of Greek prose composition equal to that given in Woodruff's Greek Prose Composition.

15. HISTORY.—At least one year in one of the following subjects: (a) The History of England and of the United States; (b) General History; (c) The History of Greece and Rome. The statement of requirements in each subject implies the use of a substantial text-book, together with some elementary training in the use of reference books.

16. LATIN.—*One year's work.*—Such knowledge of inflections and syntax as is given in any good preparatory Latin book, together with the ability to read simple fables and stories.

Two years' work.—Four books of Cæsar's Gallic War, or its

equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

Three years' work.—Six orations of Cicero. The ability to write simple Latin based on the text. The simpler historical references and the fundamental facts of Latin syntax.

Four years' work.—The scansion of hexameter verse, six books of Vergil, with history and mythology.

17. MANUAL TRAINING.—Experience in the use of wood-working tools will be required. Forge, foundry, or machine work may be substituted for wood work. The number of credits allowed will depend upon the time spent upon the subjects and the technical knowledge obtained.

18. PHYSICAL OR BIOLOGICAL SCIENCE.—For this there may be offered any one of the following subjects or combination of subjects: Physics, one year; chemistry, one year; botany and zoölogy, each a half year; biology, the study of plant or animal types, one year.

The subjects must be taught in part by laboratory methods and the pupil's note-books must be submitted. Other evidences of work done, as illustrative drawings, collections of specimens, etc., should be presented. Examinations cover the subject-matter as presented in text-books in most common use in high schools. See also the descriptions given under the several subjects.

19. PHYSICS.—The elements of physical science as presented in such text-books as Appleton's School Physics, or Avery's Elements of Natural Philosophy, or Carhart and Chute's Elements of Physics, or Gage's Elements of Physics. The candidate must have had laboratory practice equivalent to that described in the laboratory text-books of Hall and Bergen, Allen, or Chute. The candidate's laboratory note-book will be accepted as part of the examination.

20. PHYSIOGRAPHY.—The amount and character of the work required for the minimum credit may be seen by referring to Mill's Realm of Nature, or Davis's Physical Geography.

For additional credits, the principles of climatology, ability to read physical and contour maps, interpretation of weather maps, and forecasting of weather, etc., will be considered.

21. PHYSIOLOGY.—For one credit are required the anatomy, histology, and physiology of the human body and the essentials of hygiene, taught with the aid of charts and models to the extent given in Martin's Human Body (Briefer Course). For more than one credit, the course must have included practical laboratory work on the part of the student. The number of credits, beyond one,

will be determined in each case according to the quantity and quality of the work.

22. ZOÖLOGY.—Field, laboratory, and text-book work to the amount of a half year in the high school. Needham's Lessons in Zoölogy, and the zoölogical part of Huxley and Martin's Practical Biology, and of Parker's Elementary Biology, are examples of satisfactory laboratory guides. Note-books, drawings, etc., showing the student's work, must be presented.

PROGRAM OF EXAMINATIONS, SEPTEMBER 13-18, 1900

All persons who wish to enter the University in September, 1900, except those holding certificates of graduation from accredited schools and scholarship certificates, and those for whom a transfer of all entrance credits from some other college or university has already been approved, must present themselves at the Registrar's office, Library Hall, at 9 o'clock a. m., Thursday, September 13th. At that time applications for admission will be received, and applicants will be given all necessary directions as to examinations.

The program of examinations is as follows:

History, 3 or 6 credits	Thursday	1:00 p.m.
Botany, 1½ or 3 credits	Thursday	3:30 p.m.
English Literature, 6 credits	Friday	8:00 a.m.
English Composition, 3 credits	Friday	10:30 a.m.
Latin, 3 or 6 credits	Friday	1:00 p.m.
Physics, 2 or 3 credits	Friday	3:30 p.m.
Algebra, 4 credits	Saturday	8:00 a.m.
Astronomy, 1 to 1½ credits	Saturday	10:30 a.m.
Geology, 1½ or 3 credits	Saturday	10:30 a.m.
Geometry, Plane, 3 credits	Saturday	1:00 p.m.
Geometry, Solid, 1 credit	Saturday	2:45 p.m.
Physiology, 1 or 3 credits	Saturday	3:30 p.m.
German, 3 or 6 credits	Monday	8:00 a.m.
Zoölogy, 1½ or 3 credits	Monday	10:30 a.m.
French, 3 or 6 credits	Monday	1:00 p.m.
Chemistry, 2 or 3 credits	Monday	3:30 p.m.
Latin, 7 to 12 credits	Tuesday	8:00 a.m.
French, 7 to 9 credits	Tuesday	10:30 a.m.
German, 7 to 9 credits	Tuesday	10:30 a.m.
Biology, 3 to 6 credits	Tuesday	1:00 p.m.
Physiography, 1½ to 3 credits	Tuesday	3:30 p.m.
Civics, 1 or 3 credits	Tuesday	3:30 p.m.

The examinations in 1901 will begin on Wednesday, September 11th.

ADMISSION BY TRANSFER FROM OTHER COLLEGES AND UNIVERSITIES

A person who has entered another college or university of recognized standing will be admitted to this University upon presenting a certificate of honorable dismissal from the institution from which he comes and an official statement of the subjects upon which he was admitted to such institution, provided it appears that the subjects are those required here for admission by examination, or real equivalents. Candidates, to enter the University in this way, should submit such papers to the Registrar before the time of entrance, so that all doubtful points may be cleared up in advance.

ADMISSION AS SPECIAL STUDENTS

Persons over twenty-one years of age, not candidates for a degree, may be admitted to classes, after satisfying the President and the professor in charge of the department in which such classes are taught, that they possess the requisite information and ability to pursue profitably, as special students, the chosen subjects. Such students are not matriculated; they pay a tuition fee of seven dollars and a half a semester, in addition to the regular incidental fee of twelve dollars.

In the College of Agriculture special students may be received at sixteen years of age subject to the same conditions as other special students, except that they may hold scholarships in agriculture (p. 272).

ADMISSION TO ADVANCED STANDING

After satisfying in some of the ways already enumerated all the entrance requirements for admission to the University, and after matriculating, the applicant for advanced standing may secure such standing either by examination or by transfer of credits from some other college or university.

1. *By Examination.*—Candidates for advanced standing, not from other colleges or universities, may secure such standing on examination. In the case of freshman students

seeking advanced standing on the basis of their preparatory work, such standing shall be granted after satisfactory examination only, unless the applicants are from fully accredited schools. In that case a transfer of credits may be made as provided below.

2. *By Transfer of Credits.*—Credits from other colleges or universities may be accepted by the Faculty for advanced standing; but at least one year's work in residence at the University is required of all candidates for a bachelor's degree.

In all cases a certificate of honorable dismissal is required, together with a certified record of work done in the institution from which the applicant comes. These should be presented for approval some time before the student enters for work.

Upon approval of the Faculty freshmen may receive credit for advanced work done in fully accredited high schools.

REGISTRATION

At the beginning of each semester each student must present himself for registration within the time set for that purpose, before the formation of classes, and he must be present at the first exercise of each class he is to attend.

EXAMINATIONS

Examinations are held as often as in the judgment of the instructor the necessities of the work require. Examinations are also given at the close of each semester, on the work of the semester, in all subjects except those whose character renders it unnecessary or impracticable.

A record is kept of each student's standing.

SEMESTERS AND RECESS

The University year is divided into semesters each covering eighteen weeks of instruction. There is a recess of two weeks at the Christmas holidays.

For dates of opening and closing, see Calendar, p. 5.

GRADUATION

In all cases credit for one hundred and thirty "semester hours" (see p. 171) is required for graduation. The candidate for a degree in any course must complete all the subjects prescribed for graduation in that course, and when, in doing this, he does not gain the necessary credit of one hundred and thirty hours, he must make up the deficiency by the election of other courses.

The combinations of studies under which a student may graduate are too numerous to describe here; they are given under the separate colleges and schools.

ADMINISTRATION OF THE UNIVERSITY

GOVERNMENT

The government of the University is vested by the Trustees primarily in the President of the University, in the Faculty, in the Council of Administration, and in the Deans.

The President is the executive head of the University.

The Dean of the General Faculty has general oversight of the instructional work of the University, and especial supervision of the graduate school. By order of the Board of Trustees he also fills the office of Vice-President.

The Dean of each college is responsible for the enforcement of all University regulations within his college.

The Council of Administration is composed of the President, the Dean of the General Faculty, the Dean of the Woman's Department and the Deans of the separate colleges. It constitutes an advisory board to the President, *and has exclusive jurisdiction over all matters of discipline.*

The Council does not exercise general legislative functions, but when any matter arises which has not been provided for by common usage or by rule of the General Faculty, and which cannot be conveniently laid over till the next meeting of the General Faculty, the Council may act upon the same according to its discretion.

The determination of the general internal policy of the University is in charge of the Faculty.

The faculties of the different colleges and schools of the University are composed of the members of the corps of instruction of these colleges and schools, and have jurisdiction over all matters which pertain exclusively to these organizations, subject always to higher University authority.

ORGANIZATION

For the purpose of more efficient administration, the University is divided into several colleges and schools. This division does not imply that the colleges and schools are educationally separate. They are interdependent and together form a unit. In addition to the courses mentioned as given in each college and school, instruction in military science and physical training is provided. The organization is as follows:

I. The College of Literature and Arts.
II. The College of Engineering.
III. The College of Science.
IV. The College of Agriculture.
V. The Graduate School.
VI. The School of Library Science.
VII. The School of Music.
VIII. The College of Law.
IX. The College of Medicine.
X. The School of Pharmacy.

THE COLLEGE OF LITERATURE AND ARTS

The College of Literature and Arts offers—

1. General courses, offering a wide range of electives.
2. Specialized courses, or courses under the group system, including—
   a. The Classical Group.
   b. The English Group.
   c. The German and Romanic Language Group.
   d. The Latin and Modern Language Group.
   e. The Philosophical Group.
   f. The Political Science Group.

THE COLLEGE OF ENGINEERING

The College of Engineering offers courses—

1. In Architecture.
2. In Architectural Engineering.
3. In Civil Engineering.

4. In Electrical Engineering.
5. In Mechanical Engineering.
6. In Municipal and Sanitary Engineering.
7. In Railway Engineering.

THE COLLEGE OF SCIENCE

The College of Science offers courses arranged in four groups, as follows—

1. The Chemical and Physical Group.
2. The Mathematical Group.
3. The Natural Science Group.
4. The Philosophical Group.

COLLEGE OF AGRICULTURE

The College of Agriculture offers—

1. Courses leading to Agronomy as a specialty.
2. Courses leading to Animal Husbandry as a specialty.
3. Courses leading to Dairy Husbandry as a specialty.
4. Courses leading to Horticulture as a specialty.
5. Courses leading to Veterinary Science as a specialty.

THE GRADUATE SCHOOL

The Graduate School offers courses in—

1. Agriculture.
2. Engineering.
3. Literature, Philosophy, and the Arts.
4. The Sciences.

An enumeration of the departments of graduate study is given at the beginning of "General Description of Courses," (p. 171), and the separate graduate courses offered are described in connection with the proper subjects in the list of courses which there follows.

THE SCHOOL OF LIBRARY SCIENCE

The School of Library Science, or the State Library School, offers a course of study, extending over four years, in preparation for the practice of the work of a librarian. The course leads to the degree of bachelor of library science.

THE SCHOOL OF MUSIC

The School of Music offers courses in vocal and instrumental music, leading to the degree of bachelor of music.

THE COLLEGE OF LAW

The College of Law offers a course of study leading to the degree of bachelor of laws.

THE COLLEGE OF MEDICINE

The College of Medicine offers a course of study leading to the degree of M.D.

THE SCHOOL OF PHARMACY

The School of Pharmacy offers a course in all branches necessary to a complete scientific and practical knowledge of pharmacy, including pharmacy, chemistry, materia medica, botany, physics, and physiology. The course leads to the degree of graduate in pharmacy or to that of pharmaceutical chemist.

COLLEGE OF LITERATURE AND ARTS

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
DAVID KINLEY, PH.D., DEAN, Economics.
THOMAS J. BURRILL, PH.D., LL.D., Botany.
SAMUEL W. SHATTUCK, C.E., Mathematics.
CHARLES W. ROLFE, M.S., Geology.
ARTHUR W. PALMER, SC.D. Chemistry.
FRANK F. FREDERICK, Art and Design.
HERBERT J. BARTON, A.M., Latin.
CHARLES M. MOSS, PH.D., Greek.
DANIEL K. DODGE, PH.D., English.
ALBERT P. CARMAN, SC.D., Physics.
EVARTS B. GREENE, PH.D., History.
KATHARINE L. SHARP, PH.M., B.L.S., Library Science.
GEORGE T. KEMP, M.D., PH.D., Physiology.
GEORGE W. MYERS, PH.D., Astronomy.
EDGAR J TOWNSEND, PH.M., Mathematics. (On leave, 1899-1900.)
JACOB K. SHELL, M.D., Physical Training.
LEWIS A. RHOADES, PH.D., German.
JAMES B. SCOTT, J.U.D., Public Law.
THOMAS A. CLARK, B.L., Rhetoric.
ARTHUR H. DANIELS, PH.D., Philosophy.
GEORGE D. FAIRFIELD, A.M., Romanic Languages.
CHARLES W. TOOKE, A.M., Public Law and Administration.
NEWTON A. WELLS, M.P., Painting.
VIOLET D. JAYNE, A.M., English.
HARRY S. GRINDLEY, SC.D., Chemistry.
EDWIN G. DEXTER, B.PD., PH.D., Pedagogy.
HERMAN S PIATT, PH.D., Romanic Languages.

FRANK SMITH, A.M., Zoölogy.
STRATTON D BROOKS, M.PD., Pedagogy.
GEORGE H. MEYER, A.M., German.
JENNETTE E. CARPENTER, O.M., Physical Training.
GEORGE A HUFF, JR., Coach of Athletic Teams.
MATTHEW B. HAMMOND, PH.D., Economics and Sociology.
HENRY L. SCHOOLCRAFT, PH.D., History.
NEIL C. BROOKS, PH.D., German.
MARTHA J. KYLE, A.M., Rhetoric.
HENRY L. COAR, A.M., Mathematics.
WILLIAM A. ADAMS, A.B., Rhetoric and Public Speaking.
EDWARD J. LAKE, B.S., Art and Design.
LUCY H. CARSON, A.M., English.
GEORGE M. HOLFERTY, M.S., Botany.
GEORGE H. CAMPBELL, Fellow, Latin.
WILLIAM A. HAWLEY, Military.

AIMS AND SCOPE

The College of Literature and Arts includes those branches usually comprised in a department of philosophy and arts, with the exception of the natural sciences. The aim of the College is a double one: to furnish a liberal education, and to afford opportunity for specialization in literature, philosophy, and the political sciences. It is believed that this double purpose can be accomplished best by a judicious combination of prescribed and elective studies, which, while so directing the work of the student as to secure the desired mental training, will allow him a considerable range of choice in the selection both of his main line of work and of subjects auxiliary thereto.

In conformity with this general plan, it is provided that students may graduate either under a system offering a choice of a considerable number of subjects, or under one in which the principal part of the student's work is in a single line of study, or a group of related lines. The subjects which may be selected for this special study are listed as major electives on page 67. These two systems are named

respectively the general course system and the specialized course, or group, system.

The only degree given in this College is that of A.B.

THE GENERAL COURSE SYSTEM

In the General Course System it is planned to permit the student to select his studies from as wide a range of subjects as he pleases, restricted only by a certain minimum of prescribed work and by certain requirements as to the time which must be spent upon each subject in order to secure a reasonable degree of concentration. The prescribed subjects are part of the work of the first two years. So far as possible, the work of the freshman year must be made up wholly of prescribed subjects, and the rest of the prescribed work must be done in the sophomore year. Within the limits of the prescribed work, moreover, the student is permitted a choice of lines of study. For example, while a year of science is prescribed for all students, any one of the sciences may be chosen.

After finishing the prescribed subjects, each student must elect a sufficient number of courses to yield him the necessary credit for graduation. At least two electives must be pursued, each for two years, so that the student may secure twenty hours' credit in each. These two subjects are known as his majors. The word is applied in the general course system to any subjects primarily classed in the College of Literature and Arts, in which the student secures twenty hours' credit. The subjects are listed as major electives, on page 67. If the student pursues the study of any one of these subjects for less than two years, it is credited to him as a minor, as is also any subject not there listed, regardless of the time spent on it.

In the choice of his electives other than his majors, the student may take a minimum of work in each of a maximum number of subjects, or he may take a maximum amount of work in the minimum number of subjects necessary to fill up his time according to the rules of the University. The

elective minor courses open to the students of the College include subjects offered in the other colleges and schools of the University. The sciences are not an integral part of the work of the College of Literature and Arts, but they are so important a part of a liberal education that every student of the College is earnestly urged to extend his study of them so far as may be. Certain courses in the College of Engineering and in the College of Agriculture, although of a somewhat technical nature, may also be counted for credit in the College of Literature and Arts. These are more particularly mentioned under "minor courses," on page 68.

REQUIREMENTS FOR GRADUATION UNDER THE GENERAL COURSE SYSTEM

Credit for 130 hours (p. 171), including the prescribed military and physical training, is required for graduation under the general course system. Every student must take the prescribed subjects; in addition, he must select at least two subjects from the list of major electives, and he must then choose work sufficient to yield him the remainder of the required number of hours.

No credit is granted in any subject unless the student pursues it for the minimum time for which any course in the subject is offered. For example, if a student elects a course which yields two hours' credit for one semester,* he must stay in the class during the semester in order to get any credit at all. No credit is granted for less than ten hours' work in the first year of the study of any foreign language. After the first year credit may be obtained for the work of a single semester.

THE SPECIALIZED COURSE, OR GROUP, SYSTEM

A specialized, or group, course is one in which the student is required to pursue a single line of study for three consecutive years, in addition to doing the prescribed work and writing a thesis. At least twenty hours' work in the chosen subject must be done before the beginning of the senior year.

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*See for example Civil Engineering 16, p. 202.

No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work. The subject in which the thirty hours' work is required is called the student's major, and must be chosen from the list of major electives (p. 67).

As a rule, those students only who take a specialized course will be recommended from this College for fellowships, scholarships, and other university honors.

REQUIREMENTS FOR GRADUATION UNDER THE SPECIALIZED COURSE, OR GROUP, SYSTEM

Credit for 130 hours, including the prescribed military and physical training, together with an acceptable thesis, is required for graduation under the group system. Every student must take the prescribed subjects. Not later than the beginning of his junior year he must designate the group in which he wishes to be enrolled. He must at that time choose one subject in the group as his major, the study of which, alone or with the subjects designated as specifically preparatory to it, he must pursue during the remaining two years, and secure in it at least thirty hours' credit in all. He must then select, with the approval of the head of the department in which his major subject belongs, a sufficient number of other studies to yield him the necessary number of hours.

A student in a specialized course must also present an acceptable thesis. This thesis must be on a topic connected with his major study, and must present the results of investigation made during the last year of the student's course. The work of investigation must be the required work in the major subject, in whole or in part, during the student's senior year.

As in the general course system, no credit is given for parts of courses, and at least one full year's work must be done by those who begin a foreign language, in order to secure any credit therefor. The same work may not be credited both as major and minor.

The groups are as follows:

The *Classical Group,* including Greek and Latin as the

major subjects. One of these languages must be taken for thirty, the other for twenty, hours.

The *English Group,* including the Scandinavian languages. Students in this group must take two years of French or German before the beginning of the junior year, or must be able to read one of these languages easily. Those who elect the course in language must have at least two years of German.

The *German and Romanic Language Group.* Either German or French may be taken as a major, but twenty hours' credit in the other must be secured. Besides the required work in English, all students must elect additional English sufficient to make a total of at least ten hours. Students of marked ability, who take French as a major, are advised to take the courses offered in Spanish or Italian.

The *Latin and Modern Language Group,* including Latin, German, and French. Twenty hours' credit must be obtained in the language chosen for a minor.

The *Philosophical Group,* including pedagogy, philosophy, psychology, and mathematics as major subjects. In this group the second year of the student's work is devoted to studies specifically preparatory to the principal subject, which is itself taken up at the beginning of the third year.

Students in this group who make *philosophy* a major must, in the second year, make ten hours of credit from among these subjects: Anthropology, psychology, economics 17 (sociology), Greek 5.

Those who make *psychology* their major subject must, in their second year, make ten hours from among these subjects: botany 1, 2; economics 17; philosophy 2, 6, 8; physiology 4; zoölogy 1.

When *pedagogy* is the major, the work specifically preparatory is logic (philosophy 1a or 1b), outlines of philosophy (philosophy 2), and elementary and educational psychology.

Those students who make *mathematics* their major work must take the courses in mathematics numbered 2, 4, 6, 7, 9

10, 11, 15, 16, 17, and may elect as many more courses as desired. They must also make ten hours in philosophy, (including philosophy 1, a or b), and either twenty hours in German or ten in French.

The *Political Science Group,* including economics, history, and public law and administration. All students in this group must take the three elementary courses: history 1, economics 1, a and b, and public law and administration 1; and must also secure five hours in physiography, and at least three hours in philosophy, selected from courses 1, 2, 3, and 4. All students in the group must take at least one year's work in either French or German, before the beginning of the junior year, or must furnish satisfactory evidence of their ability to use at least one of the languages.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Advanced Algebra (Math. 1, 2); 2 or 3 hours.
English 1; 5 hours.
French 1, German 1 and 3, Greek 1, 2, or Latin 1; 10 hours.
Geometry, Solid and Spherical; 3 hours.
History, all of 1 or all of 2 and 6; 6 hours.
Logic (Philosophy 1a or 1b); 3 hours.
Military 1, 2; 5 hours.
Physical Training—
For men, 2½ hours.
For women, 3 hours.
Natural Science; 10 hours.
Rhetoric 1; 6 hours.
Trigonometry (Math. 3, 4); 3 or 2 hours.

ELECTIVE

MAJOR COURSES

Economics 1 to 19; 20 to 46 hours.
English 1 to 15; 20 to 40 hours.
French 1 to 4; 20 to 36 hours.
German 1, 3 to 13; 20 to 50 hours.

Greek 1 to 8; 20 to 30 hours.
History 1 to 10; 20 to 44 hours.
Latin 1 to 9; 20 to 50 hours.
Mathematics 1 to 25; 20 to 59 hours.
Pedagogy 1 to 4; 20 to 27 hours.
Philosophy 2 to 8; 20 to 21 hours.
Public Law and Administration 1 to 9; 20 to 38 hours.
Psychology.
Rhetoric 1 to 5; 20 to 36 hours.

MINOR COURSES

The necessary number of hours additional to those provided for in the prescribed subjects and the chosen major electives may be secured from any of the subjects offered in the College of Literature and Arts, or in the College of Science, the requirements for which the student can meet. But not more than twenty hours in Art and Design may be counted toward the degree, nor more than five hours in physical training, including the amount prescribed. Course 12 in library science may be taken as a minor. Certain courses offered in the College of Engineering may also be chosen; as, for example, history of architecture (Arch. 28); heating and ventilation (Arch. 13); domestic architecture (Arch. 27), etc.

The attention of young women is especially called to the courses grouped under Household Economics, p. 166.

COURSE OF INSTRUCTION

All the prescribed subjects *must be finished by the end of the sophomore year.* The following statement gives the years and semesters in which they occur:

FIRST YEAR

Fifteen to eighteen hours' work per week, exclusive of military and physical training, must be chosen each semester from among the following subjects: those in italics *must be* in the list chosen. It is expected that five hours in natural science will be taken each semester from the options named below; but if one desires to pursue an extended course in

physics instead, he may omit science in the freshman year and take up that subject in the sophomore year.

First Semester—

History: Mediæval and Modern European History (Hist. 1), or 19th Century (Hist. 2); 3 or 2 hours.

Language and Literature: English 1, 5 hours; French 1, or German 1, or Greek 1, or Latin 1, 5 hours; *Rhetoric* 1, 3 hours.

Mathematics: Advanced Algebra and Trigonometry (Math. 1, 2 or 3, 4), 5 hours.

Military: Tactics and Drill (Mil. 1, 2); 2 hours.

Natural Science: Astronomy 5, or Biology 1, or Botany 2, or Chemistry 1, or Physiography 1, or Zoölogy 5 or 6; 5 hours.

Physical Training—

For men—Physical Training 1, 3; 1¼ hours.

For women—Physical Training 7, 9; 2 hours.

Second Semester—

History: Mediæval and Modern European History (Hist. 1), 3 hours continued; or 19th Century History (Hist. 2), continued, and Roman History (Hist. 6), 5 hours.

Language and Literature: French 1, or German 8, or Greek 2, or Latin 1, continued as begun in the first semester; 5 hours. *Rhetoric* 1, continued; 3 hours.

Mathematics: Solid and Spherical Geometry; 3 hours.

Military: Drill (Mil. 2); 1 hour.

Natural Science: Astronomy 4, or Botany 1, or Chemistry 2 or 2a or 3a or 3b, or Geology 3, or Physics 2, or Physiology 4, or Zoölogy 1, 6 or 7; 5 hours.

Physical Training—

For men—Physical Training 1, 3; 1¼ hours.

For women—Physical Training 7; 1 hour.

SECOND YEAR

Fifteen to eighteen hours' work per week, exclusive of military and physical training, must be chosen each semester. This work *must include all of the prescribed subjects which were not taken in freshman year.* (See p. 65, and the classification under first year.) It must also include the following:

Logic: (Phil. 1a first semester, or Phil. 1b second semester); 3 hours.

Military: Drill (Mil. 2) both semesters; 2 hours.

The remaining hours may be made up by the election of any subjects the requirements for which the student can meet.

THIRD AND FOURTH YEARS

The studies of these are all elective.

LEGAL STUDY AND COLLEGE WORK

By a proper selection of his studies it is possible for a prospective law student to take both his degree in arts and his degree in law in six years. A student who intends to do this should announce his purpose not later than the beginning of his sophomore year, and is advised to enroll in the political science group. He should first do all the work prescribed for candidates for the degree of A.B. (see p. 64, 65); he should then take studies sufficient to leave him not more than 15 hours' credit to make in the senior year of his college course. The student during this year should enroll in the College of Law and take the first year's work there. Of this work ten hours, but no more, may be counted in the College of Literature and Arts as part of the fifteen hours remaining to be taken for the arts degree. These ten hours must be in contracts (Law 1) and real property (Law 3).

Students are not permitted to take this law work for credit toward the arts degree until their senior year; nor are they permitted to take it at all unless they are regularly matriculated candidates for the arts degree.

A fee of five dollars is charged for every law subject taken by students who do not pay the regular law school fees.

SPECIAL COURSE PREPARATORY TO LAW

This course is suggested as a suitable one for students who do not intend to take the degree of A.B. before entering the College of Law. Prospective law students who wish to get their arts degree first, should arrange their work as suggested in the statement about "Legal Study and College Work." If a student can spend but two years in preliminary study he should take the following course:

FIRST YEAR

1. Principles of Economics and English Economic History (Econ. 1, a and b); Mediæval and Modern European History (Hist. 1); Historical Introduction to Contemporary Politics (Hist. 2); Political Institutions (Pub. Law and Admin. 1); Jurisprudence (Pub. Law and Admin. 2); Rhetoric and Themes (Rhet. 1).

2. Five hours in economics from these courses: Money and Banking (Econ. 3); Financial History of the United States (Econ. 4); Public Finance (Econ. 5); The Transportation Problem (Econ. 8); Mediæval and Modern European History (Hist. 1); Historical Introduction to Contemporary Politics (Hist. 2); Political Institutions (Pub. Law and Admin. 1); Jurisprudence (Pub. Law and Admin. 2); Rhetoric and Themes (Rhet. 1).

SECOND YEAR

1. Five hours in economics from these courses: Financial History of the United States (Econ. 4); The Tariff Problem (Econ. 7); The Labor Problem (Econ. 12); The Monopoly Problem (Econ. 18); American History (Hist. 3); or English Constitutional History (Hist. 4); Comparative Administrative Law (Pub. Law and Admin. 5); Oral Discussions (Rhet. 5); Public Speaking (Rhet. 7).

2. Five hours in economics from these courses: Money and Banking (Econ. 3); Financial History of the United States (Econ. 4); Taxation (Econ. 6); The Transportation Problem (Econ. 8); American History (Hist. 3); or English Constitutional History (Hist. 4); International Law (Pub. Law and Admin. 4); Comparative Administrative Law (Pub. Law and Admin. 5); Oral Discussions (Rhet. 5).

If a student can spend but one year in preliminary work he should select from the above course such subjects as he is prepared for.

COURSES FOR TEACHERS

Students who wish to prepare themselves for teaching are advised to enroll in the group (pp. 65-67) in which occur the special subjects which they wish to teach. It is possible for a student so to combine the studies of the group he enters with electives in pedagogy and psychology as to give him both the necessary knowledge of his specialties and the

desirable pedagogical preparation. Students who have teaching in view should in all cases consult the Dean of the College before they make up their study lists.

As a rule, students who arrange their courses of study with reference to teaching particular subjects will have the preference in recommendations to positions calling for teachers of those subjects.

DESCRIPTION OF DEPARTMENTS

ART AND DESIGN

It is the aim of the department of art and design of the University of Illinois to offer courses that will assist students in their University studies, cultivate their esthetic taste, and equip them for future art work.

The department has kept pace with the growth of the University, has broadened its courses of study and has increased the number of its instructors so that it now offers many courses in drawing, painting, modeling, and design, making it possible for any University student, without additional expense, to secure valuable instruction in art.

All the courses of the department are also open to special students of art. These students enjoy opportunities beyond the reach of students in the usual art school, since all of the departments of the Preparatory School and of the University are open to them without additional expense.

On account of the close connection of the department of art and design with the other departments of the University, students may specialize in the artistic sides of their chosen courses of study, and students wishing to become teachers of drawing or manual training in the public schools may arrange courses to suit their individual needs.

ECONOMICS

The work in economics for undergraduates is so arranged that the student can take a continuous course for from one to three years. The courses are designed to cover as large a field as possible in the literature of the subject, and to present all disputed matters from different points of view.

Minor courses in sociology are provided for in the department.

ENGLISH LANGUAGE AND LITERATURE

The courses are designed to give a continuous view of the twofold subject from the earliest times to our own day. In the junior and senior years double courses are offered, so that students, having had the fundamental work of the sophomore year, may, if desired, confine themselves either to philology or to literature. The aim in the study of literature is to approach the works of an author from the philosophical, emotional, and esthetic, as well as from the merely linguistic and historical points of view.

FRENCH

(See Romanic Languages, p. 77.)

GERMAN

Four years of instruction are offered in this subject. By alternating the work in the third and fourth years, provision is made that students whose knowledge of the language at entrance enables them to begin with the third year's work, can pursue the subject throughout their course. The work of the first and second years is intended to give the student the best possible reading knowledge. In the second semester of the second year an opportunity is offered those whose special interest in the language is as a tool in scientific or technical studies, to read scientific works, but ability to translate readily and accurately is, in all cases, especially emphasized.

The work of the third and fourth years consists of a critical study of the classic poets and modern writers, and of lectures in German literature.

GREEK

The general purposes of the courses laid out in this subject are: first, to teach the Greek language; second, to train students to appreciate its literature; and third, to call

attention to those numerous problems in the history, thought, and institutions of the Greeks which illustrate similar phenomena noticeable among ourselves. To accomplish the first object, due attention is paid to the principles of grammar, particularly by making the syntax appear as the evidence of orderly mental procedure, and by continual practice in extemporaneous translation. The second is effected by a study of the surroundings and spirit of an author, and of those literary devices which give character to his productions. The third end is reached through familiar talks upon suitable topics as they are met.

HISTORY

In the courses offered by this department the effort is made, not merely to give students a general knowledge of historical facts, but also to give them some conception of the aims and methods of historical science, and of the materials with which it deals. To this end exercises in historical investigation, more or less elementary, will form a prominent part of the work in all the higher undergraduate courses, as well as in the seminaries.

ITALIAN

(See Romanic Languages, p. 77.)

LATIN

The courses at present offered in Latin are nine in number and extend over three years. The first year's instruction is, as far as needed, grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language.

As soon as this preliminary work is done, the attention is directed to two ends. The first is the acquisition of power to read the language with ease and pleasure. The thought is constantly emphasized that students are not simply reading Latin—they are reading some of the great literary masterpieces of the world, and should enjoy them as such. The second aim is to introduce the student to the daily life

of the Roman; to make his home life vivid, his political life a reality. The contribution of the Roman world to the language, literature, and institutions of our time is so great that an intimate acquaintance with that life is of the highest educational value.

The courses offered include a teachers' class, the work of which is based on the needs of those teaching preparatory Latin, and methods of presentation, difficulties, aims, and results are discussed. The members of the class do the work which they, as teachers, should require of their pupils, and at intervals take charge of the recitation.

MATHEMATICS

The object of the instruction in pure mathematics is to promote habits of mental concentration and continuity of thought, to develop the capacity to form and combine abstract conceptions, and to cultivate deductive reasoning. The course is so arranged as to meet the requirements of those who wish to fit themselves for teaching, and of those who study the science for the love of it.

The mathematical courses open to students of the College of Literature and Arts include the entire offering of the University in mathematics.

MILITARY SCIENCE

The work of the department of military science is prescribed for all male students of the Colleges of Literature and Arts, Engineering, Science, and Agriculture. A full description of the work offered and of the aims and scope of the department will be found farther on in the catalog. (See p. 277.)

PEDAGOGY

It is the aim of the department of pedagogy to meet as fully as possible the needs of the prospective secondary school teacher, and those of the city superintendent. The normal schools of our state are well equipped for supplying

the wants of the elementary schools, and it is intended that this work shall be supplemented, though not duplicated, here. General courses in the history of education and the principles of pedagogy are offered, but graduates of normal schools who have had similar courses may be given credit for them, and thus be enabled to devote their whole time to more specific phases of pedagogical work. The department works in conjunction with others of the University in directing the student's energies in such a way that the technical preparation to teach a special group of high school subjects may be combined with the proper pedagogical training to enable the teacher to apply his knowledge most advantageously. Special problems in research and investigation are offered to graduate students.

PHILOSOPHY

The work in this department includes history of philosophy, metaphysics, ethics, and logic, and is so arranged that the student may take a continuous course for either one or two years.

The courses are planned to meet the needs of those who make philosophy their specialty, and also of those who desire an acquaintance with the subject as a means of general culture. It is the constant aim to emphasize the meaning and interest of philosophy and the relations of its problems to the life of man.

PHYSICAL TRAINING

The work of this department is offered to all students in the University. Consequently the department properly belongs in all the colleges. A full description of its aim and scope is given farther on. (See p. 279.)

PUBLIC LAW AND ADMINISTRATION

The courses in public law and administration are planned with two purposes in view: (1) to give, in conjunction with the instruction in economics and history, that information and training which are requisite to intelligent citizen-

ship; and (2) to afford opportunities for advanced work to those who may desire more thorough preparation, either for active political life or preliminary to the study of law.

To meet these ends, the work is so arranged that the subject may be pursued continuously for three years. The elementary courses are given every year, while the advanced courses are offered in alternate years.

The courses, as a whole, are intended to cover the theory of the state, its organization, and practical operation.

PSYCHOLOGY

Besides the opportunity offered in this department for scientific training and original research, there is also given a basis for general culture. The student is taught to observe psychic phenomena in himself and in his social surroundings, both individual and collective, and is thus given a standpoint from which to approach social and ethical questions intelligently.

Historically, psychology is treated with a view to giving the student a connected idea of the development of the subject. Its experimental development and recent phases are given special attention, with particular comment upon the probable lines of its future development, and the place in human economy which it aims to fill.

RHETORIC AND ORATORY

The object of the courses in this department is to acquaint the student with the principles of rhetoric, to teach him correctness and effectiveness in the writing of English, and to give him some practice in the oral expression of his ideas. The subject matter is presented by means of text-books and lectures, though more emphasis is put upon practice than upon theory.

ROMANIC LANGUAGES AND LITERATURES

This department offers four years of instruction in French and one year each in Spanish and Italian. In the elementary courses the main object is to give the student

correct pronunciation, grammatical knowledge, and the ability to read the languages with facility. In the second year attention is especially directed to various phases of nineteenth century literature; effort is made to ground the student thoroughly in the modern idiom, and lectures are given upon the outlines of French literature. The work of the third year is a study of the masterpieces of the seventeenth century. Ability to understand readily spoken French is requisite for admission to this course. The field of the fourth year's work is literature and society in the eighteenth century. A graduate course is offered in Old French; some of the more important texts are studied, and attention is given to the origins of the language.

SOCIOLOGY

See economics in the philosophical group in the College of Science, p. 133, and courses 15, 16, and 18 under economics, in the "General Description of Courses," p. 205. See also, for allied courses, anthropology, p. 178, and psychology, p. 255.

SPANISH

See Romanic Languages, p. 77.

COLLEGE OF ENGINEERING

FACULTY

Andrew S. Draper, LL.D., President.
N. Clifford Ricker, M.Arch., Dean, Architecture.
Thomas J. Burrill, Ph.D., LL.D., Bacteriology.
Samuel W. Shattuck, C.E., Mathematics.
Ira O. Baker, C.E., Civil Engineering.
Arthur N. Talbot, C.E., Municipal and Sanitary Engineering; Mechanics.
Arthur W. Palmer, Sc.D., Chemistry.
Frank F. Frederick, Art and Design.
Samuel W. Parr, M.S., Applied Chemistry.
Daniel K. Dodge, Ph.D., English.
Lester P. Breckenridge, Ph.B., Mechanical Engineering.
David Kinley, Ph.D., Economics.
Albert P. Carman, ScD., Physics.
George W. Myers, Ph.D., Astronomy and Applied Mathematics.
Jacob K. Shell, M.D., Physical Training.
T. Arkle Clark, B.L., Rhetoric.
George D. Fairfield, A.M., French, Spanish.
William S. Aldrich, M.E., Electrical Engineering.
Newton A. Wells, M.P., Architectural Decoration.
Dillard H. Clark, Captain U. S. A., Military.
Edgar J Townsend, Ph.M., Mathematics. (On leave.)
James M. White, B.S., Secretary, Architecture.
William Esty, B.S., A.M., Electrical Engineering.
Harry S. Grindley, Sc.D., Chemistry.
Herman S Piatt, Ph.D., French.
Fred A. Sager, B.S., Physics.
Cyrus D. McLane, B.S., Architecture, Mechanics.

James D. Phillips, B.S., General Engineering Drawing.
Seth J. Temple, Ph.B., Architecture.
Oscar Quick, A.M., Physics.
William H. Browne, Jr., A.B., Electrical Engineering.
Milo S. Ketchum, B.S., Civil Engineering.
George A. Goodenough, B.S., Mechanical Engineering.
Charles T. Wilder, B.S., Photography, Blue Prints.
Matthew B. Hammond, Ph.D., Economics.
Neil C. Brooks, Ph.D., German.
Edward L. Milne, B.S., Mathematics.
Martha J. Kyle, A.M., Rhetoric.
Henry L. Coar, A.M., Mathematics.
Edward C. Schmidt, M.E., Mechanical Engineering.
Edd C. Oliver, B.S., Mechanical Engineering.
William A. Adams, A.B., Rhetoric.
Edward J. Lake, B.S., Art and Design.
Robert L. Short, A.B., Mathematics.
Charles V. Seastone, B.S., Mechanics.
Hubert V. Carpenter, M.S., Physics.
Halbert L. Chipps, B.S., Civil Engineering.
James F. Kable, B.S., General Engineering Drawing.
Dwight T. Randall, B.S., Mechanical Engineering.
Harry C. Marble, B.S., Electrical Engineering.
Albert R. Curtiss, Wood Shop.
Cyril B. Clark, Machine Shop.
Henry Jones, Forge Shop.
Joseph H. Wilson, Foundry.
Oscar Adolph Leutwiler, Fellow, Mechanical Engineering.
William A. Hawley, Military.

AIMS AND SCOPE

The purpose of the College of Engineering is thoroughly to educate engineers and architects. Its aim is therefore twofold—general and technical. A considerable proportion of the course of study is devoted to general and literary work, since a graduate is now expected to arrange his ideas

in clear order and to write and speak effectively. Professional success depends upon this power far more than is commonly supposed.

There is an ever increasing fund of general and scientific knowledge with which every educated man is expected to be conversant, if he desires to retain the esteem of his associates and clients. A large and most valuable portion of this knowledge is still locked up in foreign languages, and these must be acquired by patient study and practice.

It might appear that this general training would be sufficient to demand the entire attention of the student during his whole course, but not less than one-half his time must be given to purely technical training and to the acquirement of a professional capital or stock of information and knowledge of details, together with extensive practice in the attack and solution of problems and difficulties.

METHODS OF INSTRUCTION

Whenever suitable text-books can be found, they are employed, because their use saves much time in acquiring facts and data, and because such books become doubly valuable for later reference when enriched by notes and additions. But to arouse most fully the enthusiasm of the student, discussions and formal lectures are necessary, and they must be fully illustrated by sketches, diagrams, drawings, and photographs of executed work. In all courses of study offered by this College, drawing, in its manifold forms and uses, is made a special feature, both in its applications and its modes of execution.

EQUIPMENT

The equipment of the various departments is described under appropriate heads. In addition to this, the College has a good reference library and some valuable apparatus of a general character. The most important portion consists of a collection of machines and apparatus for abbreviating computations, and especially for use in the calculation of tables. The principal instruments are here mentioned:

A Thomas ten-place arithmometer, the largest size manufactured, imported especially for the University, and giving products of numbers to twenty places. Two Thacher's computing scales for performing multiplication, division, squaring, and extraction of square root. An Amsler's polar planimeter for measuring areas of figures of any form, and employed principally in graphic statics, or in measuring indicator diagrams. A Coradi's rolling planimeter and a Coradi's polar planimeter for very accurate use. An Amsler's integrator for obtaining area, static moment, and moment of inertia of a plane figure, especially of sections of columns, beams, etc. A Coradi's pantagraph of best construction for the reduction of drawings and maps. Various computing machines, including Boucher's calculator, Ram's slide rules, duplex slide rule, Webb's adders, the ribbon adder, etc. Grant's computing machines. Cox's graphical computers. A Goldmann's arithmachine.

DESCRIPTION OF DEPARTMENTS

ARCHITECTURE

The department of architecture and architectural engineering occupies nearly the entire upper story of Engineering Hall, with spacious drawing rooms lighted by skylights, convenient class rooms, library, museum, and studies.

EQUIPMENT

A large collection of casts of ornament is placed on the walls of the drawing rooms. Models of ceilings, roof trusses, stairs, joints in woodwork, and many working drawings and blue prints, with a large number of specimens of stone, terra cotta, molded bricks, etc., are found in the architectural museum, together with some interesting Norwegian, Indian, and Japanese art works.

A fine collection of 20,000 engravings, photographs, and photoprints, mounted on cards eleven by fourteen inches, is placed in the drawing rooms, classified according to the Dewey decimal system, for use in construction, history of

architecture, and designing, and forms a most valuable working library for draftsmen and designers.

An electric arc lantern is permanently placed in a special lecture room with stepped floor. For use with it, there are 3,000 lantern slides illustrating the history of architecture in all countries, and especially in the United States.

The University has an excellent working library in architecture and building, and the department has also a fine special collection of books, most of which are placed for convenient use in a room adjoining the drawing rooms.

Apparatus is provided for making tests in heating and ventilation, and for making photographs and lantern slides.

The department also possesses a large collection of working drawings, from the offices of noted architects, of residences, offices, United States buildings, and especially of the more important structures of the World's Columbian Exposition.

The course in architecture makes a specialty of architectural drawing, rendering, design, and history.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Architecture

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1); Free-hand Drawing or Modeling (Arch. 20 or 21); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2); Free-hand Drawing or Water Color (Arch. 20 or 21); French 6, or German 2 or 6; or English 2; Military 2; Physical Training, 1, 3.

Second Year

1. Applied Mechanics (Theo. and App. Mech. 4); Wood Construction (Arch. 2); The Orders of Architecture (Arch. 8); Physics 1, 3; Monthly Problems (Arch. 9); Rhetoric 2; Military 2.

2. Strength of Materials (Theo. and App. Mech. 5); Masonry

and Metal Construction (Arch. 3); Requirements and planning of Buildings (Arch. 15); Physics 1, 3; Monthly Problems (Arch. 9); Rhetoric 2; Military 2.

Third Year

1. History of Architecture (Arch. 6); Details of Styles (Arch. 7); Architectural Seminary (Arch. 11); Sanitary Construction (Arch. 4); Architectural Designing (Arch. 17); Chemistry 1, or Economics 1a; Monthly Problems (Arch. 9).

2. History of Architecture (Arch. 6); Details of Styles (Arch. 7); Architectural Seminary (Arch. 11); Graphic Statics and Roofs (Arch. 5); Architectural Perspective (Arch. 14); Architectural Composition (Arch. 18); Monthly Problems (Arch. 9).

Fourth Year

1. Superintendence, Estimates, and Specifications (Arch. 12); Heating and Ventilation (Arch. 13); Renaissance Design (Arch. 22); Gothic Design (Arch. 23); Romanesque Design* (Arch. 24).

2. Working Drawings (Arch. 10); Residence Design (Arch. 16); Design of Ornament (Arch. 25); Surveying (Civil Eng'g 10); Thesis.

ARCHITECTURAL ENGINEERING

This course of study prepares graduates for professional employment as architects, structural designers and computers, as well as superintendents of construction. It is intended for students who prefer the structural and mathematical side of the profession to its artistic side, and who desire to pursue the full engineering course in mathematics and to acquire a thorough knowledge of the iron and steel construction now employed in buildings. It differs from the architectural course principally in the addition of a second year of mathematics and of a year of civil engineering study in bridge analysis and design, and in devoting considerably less time to architectural drawing and designing.

* A second term in Arch. 22 will be accepted in lieu of Arch. 23 or Arch. 24.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Architectural Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1), or Free-hand Drawing or Modeling (Arch. 20 or 21); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3 or 7.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); Shop Practice (Mech. Eng'g 1); or Free-hand Drawing (Arch. 20 or 21); French 5, or German 2 or 6, or English 2; Military 2; Physical Training 1, 3 or 7.

Second Year

1. Differential Calculus (Math. 7); Wood Construction (Arch. 2); The Orders of Architecture (Arch. 8); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Masonry and Metal Construction (Arch. 3); Requirements and Planning of Buildings (Arch. 15); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and App. Mech. 1, 2a); History of Architecture (Arch. 6); Architectural Seminary (Arch. 11); Sanitary Construction (Arch. 4); Chemistry 1.

2. Resistance of Materials, Hydraulics (Theo. and App. Mech. 2b, 3); History of Architecture (Arch. 6); Architectural Seminary (Arch. 11); Graphic Statics and Roofs (Arch. 5); Chemistry 16; Electrical Engineering (Elect. Eng'g 1).

Fourth Year

1. Superintendence, Estimates, and Specifications (Arch. 12); Heating and Ventilation (Arch. 13); Architectural Engineering (Arch. 19); Bridge Analysis and Details (Civil Eng'g 12, 13).

2. Working Drawings (Arch. 10); Residence Design (Arch. 16); Bridge Details and Design (Civil Eng'g 13, 14); Surveying (Civil Eng'g 10); Thesis.

CIVIL ENGINEERING

The design in this department is to furnish a course of theoretical instruction, accompanied and illustrated by a large amount of practice, which will enable the student to enter intelligently upon the various and important duties of the civil engineer. While the instruction aims to be practical by giving the student information and practice directly applicable in his future professional work, the prime object is the development of the mental faculties. The power to acquire information and the ability to use it are held to be of far greater value than any amount of so-called practical knowledge.

EQUIPMENT

This department has an extensive equipment of compasses, engineers' transits, solar transits, levels,—ordinary and precise,—plane tables, sextants, chronometers, barometers, etc. For the lecture room, the department is provided with full-size joints of an actual railroad bridge, sections of columns, eye-bars, etc., and a large collection of lithographs, photographs, and blue-prints of bridges and buildings.

The *cement laboratory* occupies rooms in Engineering Hall, and is provided with slate tables, testing machines, molding machines, sieves, etc., and sample barrels of hydraulic cement, varieties of sand, and other necessary materials.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Civil Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 1, 3); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); Shop Practice (Mech. Eng'g 1); French 5, or German 2 or 6, or English 2; Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Land Surveying and Topographical Drawing (Civil Eng'g 1, 2); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Topographical Surveying, and Transit Surveying and Leveling (Civil Eng'g 2, 3); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics, and Resistance of Materials (Theo. and App. Mech. 1, 2a); Railroad Engineering (Civil Eng'g 4); Chemistry 1; Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials and Hydraulics (Theo. and App. Mech. 2b, 3); Graphical Statics and Roofs (Arch. 5); Road Engineering (Mun. and San. Eng'g 1); Descriptive Astronomy (Astron. 4); Steam Boilers (Mech. Eng'g 17).

Fourth Year

1. Bridge Analysis, and Bridge Details (Civil Eng'g 12, 13); Masonry Construction (Civil Eng'g 5); Water Supply Engineering (Mun. and San. Eng'g 2); Practical Astronomy (Astron. 6); Thesis.

2. Bridge Details, and Bridge Design (Civil Eng'g 13, 14); Sewerage (Mun. and San. Eng'g 3); Railroad Structures (Civil Eng'g 17); Tunneling (Civil Eng'g 15); or Geodesy (Civil Eng'g 6); Economics 2 or 8; Engineering Contracts and Specifications (Civil Eng'g 16); Thesis.

ELECTRICAL ENGINEERING

INSTRUCTION

This is a course in theoretical and applied electricity. The first two years of work are substantially the same as in the other engineering courses. The last two years of work include theoretical and applied mechanics, steam engineering and electrical engineering. In each of these branches the student is thoroughly familiarized with principles and their applications in designing, experimental and constructive work.

EQUIPMENT

The lecture rooms, drafting rooms and laboratories are furnished in suitable manner and equipped with the latest

and best apparatus. In the dynamo laboratory are various sizes and types of direct and alternating current dynamos, motors and rotary converters; transformers for all classes of polyphase testing; direct and alternating current switchboards, of eight marble panels each, with every appliance for expeditious handling of electric currents. Stock, tools, and instruments of best quality are provided for each line of work. The standardizing and photometry rooms, the research and thesis rooms are equipped as may be required for special and advanced work. The workshop of this department is fitted for the several branches of electrical construction. Power is supplied from the storage battery installation of this department and from the University electric light and power plant, adjoining, in the same building, in which the direct and alternating current dynamos, driven by steam engines, also afford many facilities for experimental work.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Electrical Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); French 5, or German B or 1 or 4, or English 1; Shop Practice (Mech. Eng'g 1); Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); French 5, or German 2 or 6, or English 2; Shop Practice (Mech. Eng'g 1); Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

2. Integral Calculus (Math. 9); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and Appl'd Mech. 1, 2a); Chemistry 1; Electrical and Magnetic Measurements (Physics 4); Electricity and Magnetism (Elect. Eng'g 3); Dynamo-Electric Machinery (Elect. Eng'g 2); Steam Engines (Mech. Eng'g 16).

Beginning with the first semester, 1899-00, the following groups of elective studies were opened to all students of Electrical Engineering who have satisfactorily completed the prescribed work of the preceding two years and a half, and for which additional work the same degree will be given.

GROUP I.—ELECTRICAL ENGINEERING

Regular Electrical Course

Third Year

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Steam Boilers (Mech. Eng'g 17); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical and Magnetic Measurements (Physics 4); Mechanical Engineering Laboratory (Mech. Eng'g 13); Telegraphy and Telephony (Elect. Eng'g 4); Electrical Engineering Laboratory (Elect. Eng'g 22); Electrical Design (Elect. Eng'g 31).

Fourth Year

1. Alternating Current Machinery (Elect. Eng'g 6); Alternating Currents and Alternating Current Transformer (Elect. Eng'g 5); Electrical Distribution (Elect. Eng'g 7); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electric Power Transmission (Elect. Eng'g 8); Electric Lighting (Elect. Eng'g 9); Electric Traction (Elect. Eng'g 10); Electrical Engineering Laboratory (Elect. Eng'g 23); Photometry (Elect. Eng'g 26); Elective (three semester hours); Thesis.

2. Electric Light and Power Plants (Elect. Eng'g 11); Electrical Design (Elect. Eng'g 32, 33); Seminary (Elect. Eng'g 13); Estimates, Specifications, and Superintendence (Mech. Eng'g 10); Economics 2; Advanced Electrical Measurements (Physics 9); Electro-Metallurgy (Elect. Eng'g 12); Electrical Engineering Laboratory (Elect. Eng'g 23, 24); Thesis.

GROUP II.—ELECTRICAL ENGINEERING

Electro-Physical Course

Third Year

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Steam Boilers (Mech. Eng'g 17); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical and Magnetic Measurements (Physics 4); Telegraphy and Telephony (Elect. Eng'g 4); Electrical Engineering Laboratory (Elect. Eng'g 22); Differential Equations (Math. 16).

Fourth Year

1. Alternating Current Machinery (Elect. Eng'g 6); Alternating Currents and Alternating Current Transformer (Elect. Eng'g 5); Electrical Distribution (Elect. Eng'g 7); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electrical Engineering Laboratory (Elect. Eng'g 23); Theory of Equations (Math. 10); Least Squares (Math. 14); Introduction to Theoretical Physics (Physics 6); Thesis.

2. Electric Light and Power Plants (Elect. Eng'g 11); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electrical Engineering Laboratory (Elect. Eng'g 23); Calculus of Variations (Math. 20); Introduction to Theoretical Physics (Physics 6); Investigations of Special Problems (Physics 7); Thesis.

GROUP III.—ELECTRICAL ENGINEERING

Electro-Chemical Course

Third Year

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Steam Boilers (Mech. Eng'g 17); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical and Magnetic Measurements (Physics 4); Qualitative Analysis (Chem. 3a).

Fourth Year

1. Alternating Current Machinery (Elect. Eng'g 6); Alternating Currents and Alternating Current Transformer (Elect. Eng'g 5); Electrical Distribution (Elect. Eng'g 7); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Quantitative

Analysis (Chem. 5a); Introduction to Theoretical Physics (Physics 6); Thesis.

2. Electric Light and Power Plants (Elect. Eng'g 11); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electrical Engineering Laboratory (Elect. Eng'g 21); Electro-Metallurgy (Elect. Eng'g 12); Electro-Chemical Analysis (Chem. 15c, 15d); Investigation of Special Problems (Physics 7); Thesis.

MECHANICAL ENGINEERING

It is the object of this course to give the student a thorough training in the theoretical principles underlying the science of machines and mechanics, and at the same time to make him practically familiar with some of the numerous applications of these principles.

EQUIPMENT

The equipment of this department is arranged for work of three kinds—class and drawing room work, laboratory work, and shop practice.

The *drawing rooms* are equipped with modern desks, boards, filing cabinets, card indexes, reference books, catalogues, odontographs, gear charts, tables, etc. In the cabinet rooms are kinematic models and sectioned steam specialties, many of which were donated by the manufacturers.

The *steam engineering laboratory* is in the *Mechanical and Electrical Engineering Laboratory*. It contains nine steam engines available for testing purposes. The facilities for boiler testing are excellent. There are several types of boilers equipped with different kinds of automatic stokers. There are also various kinds of steam and power pumps and numerous steam specialties arranged for tests.

The laboratory contains three gas engines, an air compressor, a hot air engine, a large volume fan, and a complete outfit of instruments used by the mechanical engineer for testing purposes.

The pumping station and power plants of the two cities furnish additional apparatus for experimental work.

The shops of the College are in charge of this depart-

ment; they consist of a wood shop, foundry, forge shop, and machine shop.

The shops are large, well lighted and attractive; they are all equipped with modern tools and furnish abundant facilities for giving the student the necessary practice in this line of work.

One hundred and fifty students can be accommodated with the present facilities.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Mechanical Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); French 5, or German B or 1 or 4, or English 1; Shop Practice (Mech. Eng'g 1); Military 1, 2; Physical Training, 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering, Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); French 5, or German 2 or 6, or English 2; Shop Practice (Mech. Eng'g 1); Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

2. Integral Calculus (Math. 9); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and Appl'd Mech. 1, 2a); Chemistry 1; Power Measurements (Mech. Eng'g 3); Mechanism (Mech. Eng'g 5); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and Appl'd Mech. 2b, 3); Chemistry 16; Power Measurements (Mech. Eng'g 3); Steam Boilers (Mech. Eng'g 17); Electrical Engineering (Elect. Eng'g 1); Surveying (Civil Eng'g 10).

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Heat Engines (Mech. Eng'g 6); High-Speed Steam Engines and Valve Gears (Mech. Eng'g 14); Advanced Designing (Mech. Eng'g 9); Advanced Mechanical Laboratory (Mech. Eng'g 12); Seminary (Mech. Eng'g 19); Thesis.

2. Mechanics of Machinery (Mech. Eng'g 8); Graphical Statics of Mechanisms (Mech. Eng'g 18); Estimates (Mech. Eng'g 10); Advanced Designing (Mech. Eng'g 9); Advanced Mechanical Laboratory (Mech. Eng'g 12); Economics 2 or 8; Seminary (Mech. Eng'g 19); Thesis.

RAILWAY ENGINEERING

The railroad interests of the State of Illinois, as well as of the United States, have become so important as to demand a separate recognition in the courses of those educational institutions which offer instruction in engineering.

Wishing to meet the demand for specialization along this important line the University has established an undergraduate course leading to the degree of B.S. in *Railway Engineering,* and also provides for graduate instruction and investigation in this department leading to a second degree.

Three leading railroads of the state have promised their coöperation in the work of this department. The department of civil engineering already furnishes special instruction relating to construction and maintenance of way. This new course will be devoted to the problems of motive power and machinery, including construction, design, and operation of locomotives and rolling stock. It will include also tests of fuel, water supply, materials, and supplies.

EQUIPMENT

The shops and laboratories of the departments of mechanical and electrical engineering, applied mechanics, and chemistry furnish abundant laboratory facilities along these special lines.

The department is rapidly acquiring a considerable amount of class room and laboratory material, such as photo-

graphs, blue prints, and samples of manufactured specialties of value to the students of this work.

This department now owns, with the P. & E. Div. of the C. C. C. & St. Louis Ry., a fully equipped dynamometer car, No. 609. It also owns, with the Illinois Central R. R., a fully equipped railway test car.

These cars have been designed and built for locomotive and railway tests, and they are used for no other purpose. They have been built and equipped with special reference to the following service:

1. Locomotive road tests for economy.

2. Locomotive capacity tests and measurements of train resistance.

3. Automatic track inspection for line and grade.

4. Air brake service inspection.

5. Stationary plant tests at railway shops and water stations.

The department owns a continuous steam engine indicator, apparatus for determining the effect of scale deposits on the transfer of heat through the tubes, as well as considerable apparatus designed and built for various tests of locomotives in actual service.

The new railway shops of the P. & E. Div. of the C., C., C. & St. L. Ry. at Urbana furnish exceptional opportunities for inspection of construction and repair work, and the assured aid that this department will receive from the management of these shops cannot but be of considerable value to the student.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Railway Engineering

First, Second and Third Years

Same as the course of instruction in mechanical engineering.

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Locomotive Engines (Ry. Eng'g 1); Locomotive Engine Design (Ry. Eng'g 2); Shop

Systems (Ry. Eng'g 3); Locomotive Road Tests (Ry. Eng'g 4); Seminary (Mech. Eng'g 19); Thesis.

2. Mechanics of Machinery (Mech. Eng'g 8); Compressed Air in Railway Service (Ry. Eng'g 5); Railway Estimates (Ry. Eng'g 6); Advanced Designing (Ry. Eng'g 7); Dynamometer Car Tests (Ry. Eng'g 8); Economics 2 or 8; Seminary (Mech. Eng'g 19); Thesis.

MUNICIPAL AND SANITARY ENGINEERING

This course is designed for students desiring to make a specialty of city engineering work. It prepares for the varied duties of engineer of the department of public works of cities and includes instruction in modern methods of sanitation of cities.

INSTRUCTION

Instruction is given by lectures, by text-book and seminary work, and by field, laboratory, and drafting work. The methods of training are intended to develop power to take up and solve new problems connected with municipal public works, as well as to design and to superintend the ordinary constructions. Surveying, structural materials, and structural design are taught as in the civil engineering course. Chemistry, botany, and bacteriology, so far as necessary to a comprehension of the questions involved in water supply and sewage disposal, are given.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Municipal and Sanitary Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Elements of Drafting, Descriptive Geometry (Drawing, Gen. Eng'g 1a, 1b); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 1, 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry, Lettering and Sketching (Drawing, Gen. Eng'g 2a, 2b, 2c); Shop Practice (Mech. Eng'g 1); French 5, or German B or 2 or 6, or English 2; Military 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Land Surveying and Topographical Drawing (Civil Eng'g 1, 2); Physics 1, 3); Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Topographical Surveying, and Transit Surveying and Leveling (Civil Eng'g 2, 3); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics, and Resistance of Materials (Theo. and Appl'd Mechanics 1, 2a); Bacteriology (Mun. and San. Eng'g 5a); Chemistry 1; Railroad Engineering (Civil Eng'g 4a); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and Appl'd Mech. 2b, 3); Road Engineering (Mun. and San. Eng'g 1); Graphic Statics and Roofs (Arch. 5); Chemistry 3a; Steam Boilers (Mech. Eng'g 17); Electrical Engineering 1.

Fourth Year

1. Bridges (Civil Eng'g 12, 13); Chemistry 20; Masonry Construction (Civil Eng'g 5); Water Supply Engineering (Mun. and San. Eng'g 2); Thesis.

2. Bridge Design (Civil Eng'g 13, 14a); Engineering Contracts and Specifications (Civil Eng'g 16); Mechanical Engineering Laboratory (Mech. Eng'g 13); Sewerage (Mun. and San. Eng'g 3); Water Purification, Sewage Disposal, and General Sanitation (Mun. and San. Eng'g 6); Thesis.

PHYSICS

The courses in this department are designed to furnish the student who intends to follow the profession of engineering, science teaching, or research in physical science, with a knowledge of the phenomena and laws of physics.

EQUIPMENT

The rooms devoted to physics are in Engineering Hall. They include a large lecture room and cabinet, a large general laboratory and cabinet, several small laboratories, a constant-temperature room, a battery room, a workshop, and several private studies, laboratories, and offices.

The *lecture room* is in the form of an amphitheater, and is furnished with opera chairs provided with tablet arms. Piers at the lecture desk and in the center of the room make demonstrations with the more delicate apparatus possible. A permanent screen and rolling blinds operated by a motor facilitate illustration by lantern. The cabinet rooms adjoining the lecture room are supplied with apparatus suitable for illustration and demonstration, and are provided with conveniences for preparing apparatus for lectures.

The general laboratory is a room sixty feet square and is well lighted and ventilated. It is supplied with tables, shelves, and sinks, arranged for general experimental work. The cabinet room adjoining this laboratory contains the apparatus designed for elementary experimental work.

The *small laboratories,* six in number, are on the first floor, and are abundantly provided with masonry piers, wall shelves, sinks, dark curtains, etc. They contain a line of high-grade apparatus for advanced experimental work and research. The electrical measurement apparatus is especially complete, and there is an excellent line of apparatus from the best makers for the fundamental measurements in mechanics, heat, and light.

The *constant-temperature* room is on the first floor. It is isolated from the surrounding space by double masonry walls and double doors. It is arranged for such experiments as require a low, uniform temperature.

The department has a mechanician and well equipped workshop. This gives facilities for making apparatus from original designs for the general work of the department, and also for special investigations and research.

In addition to the preceding, there are a number of private studies and laboratories for the use of advanced students and instructors.

THEORETICAL AND APPLIED MECHANICS

The courses in theoretical and applied mechanics are designed to meet the needs of students of the College of Engineering.

EQUIPMENT

The laboratory of applied mechanics is located in the Wood Shops and Testing Laboratory. It comprises the *materials laboratory* and the *hydraulic laboratory*.

The *materials laboratory* has an Olsen testing machine of 200,000 pounds' capacity, arranged to test beams twenty feet long; a Riehle testing machine of 100,000 pounds' capacity; torsion testing machine of 230,000 pound-inch capacity; apparatus for testing beams; Keep's dead-load and impact machines for cast iron; a Riehle wire-testing machine; extensometers and deflectometers, a stone-grinding machine, rattlers for abrasion tests of stone and brick, with other apparatus for making all necessary measurements and observations, etc. The laboratory is fitted up as a working laboratory, where students may acquire such practice in experimental work as engineers are called upon to perform, as well as for the purpose of illustrating principles, and also for use in original investigation.

The *hydraulic laboratory* contains a steel standpipe connected with city water supply and having several openings, a steam pump, centrifugal pump, tanks, pits, scales, pressure gauges, hook gauges, meters, including a Venturi meter, water motor and other apparatus for experiments with orifices, tubes, weirs, pipes, hose, and nozzles. Experiments are made in connection with the regular class instruction.

COLLEGE OF SCIENCE

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
STEPHEN A. FORBES, PH.D., DEAN, Zoölogy.
THOMAS J. BURRILL, PH.D., LL.D., Botany and Horticulture.
SAMUEL W. SHATTUCK, C.E., Mathematics.
CHARLES W. ROLFE, M.S., Geology.
ARTHUR W. PALMER, SC.D., Chemistry.
FRANK F. FREDERICK, Art and Design.
SAMUEL W. PARR, M.S., Applied Chemistry.
DAVID KINLEY, PH.D., Economics.
ALBERT P. CARMAN, SC.D., Physics.
EVARTS B. GREENE, PH.D., History.
GEORGE T. KEMP, M.D., PH.D., Human Physiology.
GEORGE W. MYERS, PH.D., Astronomy and Mathematics.
JACOB K. SHELL, M.D., Physical Training.
EDWIN G. DEXTER, B.PD., PH.D., Pedagogy.
EDGAR J TOWNSEND, PH.M., Mathematics. (On leave.)
T. A. CLARK, B.L., Rhetoric.
ARTHUR H. DANIELS, PH.D., Philosophy.
CHARLES W. TOOKE, A.M., Public Law and Administration.
DILLARD H. CLARK, U.S.A., Military Science and Tactics.
VIOLET D. JAYNE, A.M., English.
HARRY S. GRINDLEY, SC.D., Chemistry.
HERMAN S PIATT, PH.D., French.
FRED A. SAGER, B.S., Physics.
FRANK SMITH, A.M., Zoölogy.
CHARLES A. KOFOID, PH.D., Zoölogy.
OSCAR QUICK, A.M., Physics.
GEORGE H. MEYER, A.M., German.

STRATTON D BROOKS, M.PD., Pedagogy.
JENNETTE E. CARPENTER, O.M., Physical Training for Women.
GEORGE A HUFF, JR., Coach of Athletic Teams.
CARLTON A. ROSE, PH.M., SECRETARY, Chemistry.
CHARLES T. WILDER, B.S., Photography.
WILLIAM C. BRENKE, M.S., Mathematics.
MATTHEW B. HAMMOND, PH.D., Economics and Sociology.
HENRY L. SCHOOLCRAFT, PH.D., History.
NEIL C. BROOKS, PH.D., German.
MARTHA J. KYLE, A.M., Rhetoric.
HENRY L. COAR, A.M., Mathematics.
EDWARD J. LAKE, B.S., Art and Design.
GEORGE M. HOLFERTY, M.S., Botany.
ROBERT L. SHORT, A.B., Mathematics.
JOHN H. MCCLELLAN, A.M., Zoölogy.
CLENDON V. MILLAR, M.S., Chemistry.
GEORGE P. CLINTON, M.S., Botany.
GEORGE D. HUBBARD, M.S., Geology.
HUBERT V. CARPENTER, M.S., Physics.
JOHN L. SAMMIS, M.S., Chemistry.
ROBERT W. STARK, B.S., Chemistry.
ALBERT F. BURGESS, M.S., Entomology.
JAMES H. WALTON, JR., B.S., Chemistry.
FRANK R. FRAPRIE, B.S., Chemistry.
FRED C. KOCH, B.S., Fellow in Chemistry.
HORACE C. PORTER, A.B., B.S., Fellow in Chemistry.
WILLIAM A. HAWLEY, Military.

AIMS AND SCOPE

The College of Science is based upon the idea that th methods of science and the branches of study to which thos methods are applicable present a subject-matter and a dis cipline ample for the purposes of a liberal education, an that an education so derived differs materially in characte and value from one whose sources are mainly literary. Thi College is distinguished in general from the technical col

leges of the University by the fact that its choice of subjects is not limited by practical ends, and from the College of Literature and Arts by the predominance, in its courses and requirements, of the strictly scientific subjects. It is articulated with the latter, however, by the liberal elections from the literary courses permitted to students who have satisfied its demands as to scientific work, and by the special courses in science open to election by students from the companion college.

It affords an opportunity for the study of the natural, physical, mathematical, and mental sciences, and of economic, sociological, and philosophical subjects, either as specialties or as the substance of a general education. The candidate for graduation may take a year each in any four of the principal subjects of this College, with a considerable amount of language, literature, and general study; he may concentrate his major work on any one of the several subjects in which major courses are offered; or he may adopt any program of concentration of his major work intermediate between these extremes. The subjects presented in this College are accordingly arranged in four groups,—chemical and physical, mathematical, natural science, and philosophical,—each characterized by the predominant importance and development of the subjects indicated by its name. The studies of each group are again divided into required and elective subjects. All the required subjects are necessary to graduation in the group of studies specified; those of the elective lists are open to election, restricted only by certain general requirements, varying in the different groups, regarding the amount and distribution of the work to be done on them.

It is the purpose of this system of classification and requirement to permit large liberty of choice with respect both to main lines of study and to associated or secondary subjects, and at the same time so to guide the student's elections that his course of study shall always contain a central core or axis of closely articulated major work. Preference

is further given by this means to those minor subjects most important because of their relations to the major work elected.

The only degree given in this College is that of bachelor of science. University credit to the amount of one hundred and thirty hours (p. 171) is required for graduation. Ten of these may be earned by investigation work, the results of which are to be presented in a final thesis. Credit will be given for fractions of courses of instruction in exceptional cases only, by vote of the college faculty.

The attention of women students is especially called to the courses outlined under "household economics," p. 166. These courses count for credit for students in either the chemical or the natural science group.

EQUIPMENT

Laboratories.—The College of Science occupies three of the University buildings—the Chemical Laboratory, Natural History Hall, and the Astronomical Observatory—together with several rooms in University Hall assigned to the mathematical department and to some of the departments of the philosophical group. The physics laboratories and lecture room are in Engineering Hall, and the natural history museum is in University Hall.

The laboratory and library facilities of this College have been acquired with primary reference to the needs of the undergraduate student, and are scarcely surpassed, for their purpose, in grade and completeness, among American universities. The graduate student likewise finds here an ample equipment, material, and opportunity for independent investigation in several departments of study, notably in those covered by the operations of the State Laboratory of Natural History and of the State Entomologist's office.

THE CHEMICAL AND PHYSICAL GROUP

AIMS

The purposes of the chemical and physical group are:

1. To provide a training in the principles of chemistry and physics as part of a liberal education.

2. To furnish such instruction and training in these sciences as is requisite for the successful prosecution of studies in other sciences, i. e., biology, physiology, geology, agriculture, sanitary engineering, electrical engineering, domestic economy, etc.

3. To afford opportunity for the acquisition of the technical knowledge and skill needed in the applications of chemistry in the industrial world by the analytical chemist and expert, the manager of chemical and metallurgical industries, or the scientific and manufacturing pharmacist.

4. To meet the demands of those who are preparing themselves as teachers of chemistry and physics.

5. To lay the foundation for a career as investigator in chemistry or in physics.

Suggestions as to choice of courses.—The courses in chemistry and in physics, which are outlined on pages 107 and 110 include lists of electives which afford opportunities for extensive range in selection of options, so that it is possible to arrange numerous combination courses directed to various specific ends.

One intending to teach chemistry and physics should take all the prescribed work of the chemical course, selecting numbers 7 and 12 among his chemical electives and taking also physics 5 or 6 and mathematics 4; he can then fill out the rest of his restricted and open electives by choice of studies from the natural science group or make choice of subjects in languages and literature, etc.; or, if he wish to devote himself more fully to physics, he should take the chemical-physical course as outlined on page 110.

A course preparatory to the study of medicine may be

arranged by taking the prescribed work of the chemical course, amounting to 84 hours' credit, selecting among the chemical electives toxicology, urinalysis, and sanitary analysis, and for the other electives taking art and design, bacteriology (botany 5), biology 1, physiology 4, psychology 2, zoölogy 2 and 3. The completion of this course will enable the student to obtain credits amounting to one year's work upon the four years' medical course at the College of Medicine of the University of Illinois, and will prepare him for specialization in medical and physiological chemistry.

Students of chemistry who intend to become commercial analysts should include among their chemical electives 5c, 8, 10, 6b, 15a, b, c, 18a, 24, 25, take bacteriology (botany 5 or 6), mineralogy 1a, and fill out the rest of their electives by selection of subjects from the natural science group.

EQUIPMENT FOR CHEMISTRY

Laboratories.—The Chemical Laboratory is 75 by 120 feet and three stories high, including basement. The basement contains the water survey laboratory and rooms for storage and dispensing, and for work in assaying and metallurgical chemistry. The first floor has a lecture room and laboratory for general chemistry and qualitative analysis, each of which accommodates 150 students; a large private laboratory, and a store room. The second floor has a laboratory for quantitative analysis and organic chemistry, a balance and reading room, and a large private laboratory.

Several recitation rooms used by this department and rooms for special work in physical chemistry are in University Hall.

Apparatus.—The laboratories are furnished with all of the supplies required for the various lines of work in pure and applied chemistry.

The apparatus for general use, all of which is new and of the most improved pattern and construction, includes thirty-two high grade analytical Sartorius and Troemner balances, an abundant supply of platinum ware, including combustion

tubes and a large retort for making pure hydrofluoric acid, Kahlbaum's mercurial air pumps, Schmidt and Haensch saccharimeters of three different styles, complete sets of Hofmann's and Lepsius's apparatus for lecture demonstrations, Orsat's and Hempel's apparatus for gas analysis, microscopes, spectroscopes, apparatus for electrolytic analysis, etc.; for work in physical chemistry there are thermostats, Abbe's and Pulfrich's refractometers, Krüss's universal spectral apparatus with all attachments, two calorimetric bombs, one of which is lined with platinum, Beckmann's apparatus, Dumas', Hofmann's, and Meyer's vapor density apparatus, apparatus for determination of electrical conductivities. The laboratory is provided with its own dynamo, a large storage battery, and an excellent projection lantern.

A very important feature of the equipment consists of the chemical library, which, in addition to all the modern, standard chemical texts, dictionaries, and encyclopedias, includes complete sets of nearly all the more important chemical journals, especially the German and the English. The current numbers of many others are regularly received.

EQUIPMENT FOR PHYSICS

For the equipment in physics see p. 96.

CHEMICAL COURSES

CLASSIFICATION OF SUBJECTS

Prescribed

1. *Chemical.*—General Elementary Chemistry (Chem. 1); 5 hours.*
   Descriptive Inorganic Chemistry (Chem. 2); 3 hours.
   Inorganic Preparations (Chem. 2a); 3 hours.
   Physical Chemistry (Chem. 7); 3 hours.
   Organic Chemistry (Chem. 9, 9a, 14); 7½ hours.
   Qualitative Analysis (Chem. 3a); 5 hours.
   Quantitative Analysis (Chem. 5a); 5 hours.
   Seminary (Chem. 19); 4 hours.

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* For explanation of "hours" see p. 171.

2. *General.*—Advanced Algebra and Trigonometry (Math. 1, 3, or 2, 4); 5 hours.
   German B or 1, 3, 4, 6; 20 hours.
   Military Science, 1, 2; 5 hours.
   Physical Training—
     Men, 1, 3; 2½ hours.
     Women, 7, 9; 3 hours.
   Physics 1, 3; 9 hours.
   Rhetoric 2; 6 hours.

Elective

List A

First Semester—
- Assaying (Chem. 15b); 2 hours.
- Metallurgy (Chem. 6b); 3 hours.
- Metallurgical Chemistry (Chem. 15a); 2 hours.
- Sanitary Analysis (Chem. 10); 3 to 5 hours.

Second Semester—
- Chemical Technology (Chem. 6a); 3 hours.
- Electrolytic Analysis (Chem. 15c); 3 hours.
- Food Analysis (Chem. 5c); 2 to 10 hours.
- Household Chemistry (Chem. 23); 5 hours.
- Industrial Chemistry (Chem. 17); 3 hours.
- Iron and Steel Analysis (Chem. 8); 3 hours.
- Mineral Analysis (Chem. 5b); 3 to 10 hours.
- Theoretical Chemistry (Chem. 12); 3 hours.

Either Semester—
- Agricultural Chemistry (Chem. 13); 5 to 10 hours.
- Proximate Organic Analysis (Chem. 21); 3 to 10 hours.
- Physical Chemistry (Chem. 7); 3 to 10 hours.
- Special Advanced Courses (Chem. 18a, b, c); 1 to 10 hours.
- Thesis Investigation (Chem. 11); 5 to 15 hours.
- Toxicology (Chem. 24); 2 to 5 hours.
- Urinalysis (Chem. 25); 2 hours.

List B

- Astronomy 4, 5; 3 to 6 hours.
- Biology 1, 2; 5 or 10 hours.
- Botany 1, 2, 3, 5, 6, 8; 2 to 29 hours.
- Geology 1, 2, 3; 5 or 10 hours.
- Mineralogy 1, 2; 5 or 10 hours.
- Paleontology 1; 5 or 10 hours.

Physics 5; 3 to 10 hours.
Physiography 1; 5 hours.
Physiology 1, 2, 4, 5, 6; 1 to 20 hours.
Zoölogy 1, 2, 3; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION.

In order to graduate in chemistry, the candidate must complete all the required courses (84 hours), and must have at least 13 hours additional for subjects chosen from the list A of chemistry electives. For the remaining 33 hours he must choose 15 hours of electives from list B and for the other 18 hours must choose subjects from any University offerings, subject to the approval of the head of the department of chemistry. He must make in all 130 hours' credit, and present an acceptable thesis.

Special exceptions as to the required number of chemical options may be made for those who desire to prepare themselves as teachers of chemistry rather than as technical chemists, and for those who in preparing for the study of medicine wish to take major work in chemistry.

COURSE OF INSTRUCTION

For the Degree of B.S. in Chemistry

First Year

1. General Elementary Chemistry (Chem. 1); German B or 1 or 4; Mathematics 1, 3 or 2, 4; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Descriptive Inorganic Chemistry (Chem. 2); German B or 3 or 6; Inorganic Preparations (Chem. 2a); Qualitative Analysis (Chem. 3a); Military 2; Physical Training 1, 3 or 7.

Second Year

1. German 4; Physics 1, 3; Quantitative Analysis (Chem. 5a); Rhetoric 2; Military 2.

2. German 6; Organic Chemistry (Chem. 9 and 9a); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Organic Chemistry, special chapters (Chem. 14); Rhetoric 2; Seminary (Chem. 19); Electives.

2. Physical Chemistry (Chem. 7); Rhetoric 2; Seminary (Chem. 19); Electives.

Fourth Year

1. Seminary (Chem. 19); Electives.
2. Seminary (Chem. 19); Electives.

APPLIED CHEMISTRY AND ENGINEERING

To meet the needs of those who wish to fit themselves for such work as devolves upon the managers of establishments in which the operations depend upon chemical processes, a four years' course in chemistry with related engineering subjects has been arranged.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Chemistry and Engineering

First Year

1. Drawing (Gen. Eng'g 1a, 1b); General Chemistry (Chem. 1); German B or 1 or 4; Mathematics 1, 3 or 2, 4; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Descriptive Inorganic Chemistry (Chem. 2); German B or 3 or 6; Inorganic Preparations (Chem. 2a); Military 2; Physical Training 1, 3 or 7.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; Qualitative Analysis (Chem. 3a); Rhetoric 2; Shop Practice (Mech. Eng'g 1); Military 2.

2. Chemistry 5a and 6a; Integral Calculus (Math. 9); Physics 1, 3; Shop Practice (Mech. Eng'g 1); Military 2.

Third Year

1. Analytical Mechanics (Theo. and Appl'd Mech. 1 or 4); Metallurgical Chemistry and Assaying (Chem. 15a and 15b); Metallurgy (Chem. 6b); Seminary (Chem. 19); Shop Practice (Mech. Eng'g 2); Steam Engines (Mech. Eng'g 16).

2. Electrical Engineering 1; Organic Chemistry (Chem. 9); Resistance of Materials (Theo. and Appl'd Mech. 2 or 5); Seminary (Chem. 19); Steam Boilers (Mech. Eng'g 17); Shop Practice (Mech. Eng'g 2).

Fourth Year

1. Chemistry, special advanced subjects (selected from Chemistry 8, 10, 15c, 17, 18); Thermodynamics (Mech. Eng'g 7); Thesis and Investigation (Chem. 11).

2. Chemistry, special subjects (selected from Chem. 15d, 18 (a) to (d); Thesis and Investigation (Chem. 11).

PHYSICAL COURSES

CLASSIFICATION OF SUBJECTS

Prescribed

Chemistry 1, 2; 8 hours (p. 171).
French 1, 2, 5; or Geman B or 1, 3, 6; 20 hours.
Mathematics 2 (Advanced Algebra); 3 hours.
Mathematics 4 (Trigonometry); 2 hours.
Mathematics 6 (Analytical Geometry); 5 hours.
Mathematics 7 (Differential Calculus); 5 hours.
Mathematics 9 (Integral Calculus); 5 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 1, 3; 9 hours.
Rhetoric 2; 6 hours.

Elective

List A (Physical)

Physics 5 and 6; 12 or 16 hours.
Physics 7; 6 or 10 hours.
Physics 8; 6 hours.
Mathematics 10 (Theory of Equations); 3 hours.
Mathematics 16 (Differential Equations); 3 hours.
Astronomy 4, 5; 5 to 10 hours.

List B (Chemical-Physical)

Physics 5 and 6; 12 or 16 hours.
Physics 7; 6 or 10 hours.
Chemistry 3a; 5 hours.

Chemistry 9, 9a; 5 hours.
Chemistry 5a; 5 hours.
Chemistry 5b; 3 or 5 hours.
Chemistry 12; 3 hours.
Chemistry 7; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

The foregoing courses have been arranged for those who wish to prepare themselves for special work in physics and allied sciences. In addition to the subjects of the prescribed list, two general lines of work are offered under elective lists A and B, one of which must be taken with the list of prescribed subjects. The advanced theoretical work of the first of these lines is largely general mechanical physics; that of the second more especially chemical. The laboratory work follows the same lines. The additional studies necessary to complete the number of hours required for graduation may be elected from the various University courses, with the approval of the head of the department of physics.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Physics

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); German B or 1 or 4; Chemistry 1; Rhetoric 2; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); German B or 3 or 6; Chemistry 2, 4; Chemistry 3a, or Rhetoric 2; Military 2; Physical Training, 1, 3 or 7.

Second Year

1. Physics 1, 3; Differential Calculus (Math. 7); Rhetoric 2; German 4, or Chemistry 5a; Military 2.

2. Physics 1, 3; Integral Calculus (Math. 9); Rhetoric 2; German 6, or Chemistry 5b; Chemistry 12; Military 2.

Third Year

Physics 5, 6; Mathematics 10, 16; Astronomy 4, or Chemistry 7; Electives.

Fourth Year

Physics 7, or Physics 7, 8; Electives.

It will generally be necessary to follow the above, but other arrangements consistent with sequences of courses may be made in special cases.

DESCRIPTION OF DEPARTMENTS

CHEMISTRY

The chemical offerings include courses of instruction in general elementary, inorganic, organic, physical, and theoretical chemistry, and several lines of qualitative and quantitative analysis. (See *Chemistry,* in DESCRIPTION OF COURSES, p. 192.)

The first year is devoted to the consideration of general descriptive inorganic chemistry and qualitative analysis, the first half of the second year is occupied with courses in quantitative analysis, both gravimetric and volumetric, and the second half year is given to general organic chemistry. The work of these two years and that of the first half of the third year, which is devoted to more advanced organic chemistry, is prescribed for all students of the chemical courses, and is intended to impart a knowledge of the facts of chemistry, to develop skill and accuracy in manipulation, and to constitute a scientific grounding in the fundamental principles and laws of chemistry.

Aside from this prescribed work there are offered numerous electives in chemistry, which, by judicious selection, afford opportunity for specialization along any of the lines of analytical, pharmaceutical, technological, or pure chemistry.

In order that an acquaintance with chemical literature may be had, and to keep pace with the advances in chemistry, students of the third and fourth years are required to take part in the chemical seminary, in which the work consists chiefly of reviews and discussions of assigned articles in current numbers of the various journals.

One or two semesters' work in the fourth year must be devoted to the investigation of some chemical problem. This practice furnishes an opportunity to specialize along some chosen line and serves as an introduction to the methods of chemical research.

To students who are preparing to become teachers of physical science opportunity is offered for the acquirement of some experience in supervising laboratory practice in elementary chemistry. The work includes criticism and discussion of methods and application of pedagogical principles and is conducted with the coöperation of the department of pedagogy.

APPLIED CHEMISTRY

In this department there are offered ten separate courses in technological subjects. These require as preliminary work the seven general and analytical courses. They may be further supplemented by special advanced work along some chosen line. Frequent visits are made to metallurgical and other works employing chemical processes.

PHYSICS

The department of physics offers a lecture course in general descriptive physics with class room experiments, extending through the year, and accompanied by an introductory laboratory course in physical measurements. This is followed by two courses, one experimental and the other theoretical. In the experimental course the student is trained in the most exact methods of making the fundamental physical measurements and taught how to discuss his results. The theoretical course running parallel to this discusses, with the aid of elementary calculus, the theory of some of the main subjects of physics. In the senior year the student is supposed to take up some special problem for investigation and to center his laboratory work about that. An advanced mathematical course is also offered for those who wish to follow the most advanced theories and results of the science.

THE MATHEMATICAL GROUP

AIMS

The mathematical group aims to lay the mathematical foundation for special work in any one of three lines, as well as to offer an opportunity for advanced work. It is hoped that the courses offered will meet the requirements of those who need mathematics as a tool as well as of those who wish to make it a specialty.

Parallel to the pure mathematics two lines of associated work in applied mathematics are offered, namely, in physics and astronomy. Either of these may be taken by the student wishing to graduate from this group. The one leads through the physics of the sophomore year to the mathematical theory of electricity and magnetism, heat, light, and sound; the other through surveying to celestial mechanics and general and mathematical astronomy. In addition to these, a course in astronomy and physics is offered, including the mathematics through the junior year, but leading to theoretical astronomy and advanced physics in the senior year.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

General Engineering Drawing 1a, 1b; 5 hours (p. 171).
Mathematics 6, 7, 9, 10, 11, 14, 16, 17, 20, 25; 31 hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.

ELECTIVE

List A (Mathematics and Astronomy)

Mathematics 13, 23 or 12, 18, 24; 6 or 8 hours.
Mathematics 21, 22, or Astronomy 7, 9; 6 hours.
Mathematics 15, or Astronomy 10; 2 hours.
Mathematics 26; 2 hours.
Astronomy 4, 5, 6; 10 hours.
Physics 1, 3; 9 hours.

Civil Engineering 10; 3 hours.
French 1, 2, 5; or German B or 1, 3, 4, 6; 20 hours.

List B (Mathematics and Physics)

Mathematics 13, 23, or Mathematics 12, 18, 24; 8 or 6 hours.
Mathematics 15; 2 hours.
Mathematics 26; 2 hours.
Physics 1, 3, 5, 6; 20 hours.
French 1, 2, 5; or German B or 1, 3, 4, 6; 20 hours.

List C (Astronomy and Physics)

Astronomy 7, 9, or Mathematics 20, 21, 22; 6 hours.
Astronomy 4, 5, 6; 6 hours.
Astronomy 10; 4 hours.
Mathematics 26; 2 hours.
Physics 1, 3, 5, 6; 15 hours.
Civil Engineering 10; 3 hours.
German B or 1, 3, 4, 6; 20 hours.

List D

Anthropology 1; 3 hours.
Biology 1; 5 hours.
Botany 1, 2; 5 or 10 hours.
Chemistry 1, 3a or 3b, 4; 5 or 10 hours.
Economics 1 or 2 to 8, 11 to 17; 2 to 34 hours.
English 1, 2; 10 hours.
French 1, 5, 2; or German B or 1, 3, 4, 6; 20 hours.
Geology 1, 3; 5 to 15 hours.
History 1, 2; 2 to 10 hours.
Latin 1; 10 hours.
Library Science 12; 1 hour.
Mineralogy 1, 2; 5 or 10 hours.
Pedagogy 1 to 8; 3 to 20 hours.
Philosophy 1 to 8; 2 to 24 hours.
Physiology 4 or 1; 5 or 10 hours.
Psychology 1 to 5; 3 to 24 hours.
Public Law and Administration 1 to 7; 2 to 29 hours.
Theoretical and Applied Mechanics 1; 5 hours.
Zoölogy 1, 2, 7; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

To graduate as a bachelor of science in the mathematical group, it is necessary for the student to complete the

list of prescribed subjects, together with those of any one of lists A, B, or C of electives, and to present an acceptable thesis. The necessary number of 130 hours may then be made up by election from lists A, B, C, and D.

COURSES OF INSTRUCTION BY YEARS AND SEMESTERS

The studies of the mathematical group may best be taken according to the following outlines of courses in mathematics and physics, in mathematics and astronomy, and in astronomy and physics, respectively.

COURSE OF INSTRUCTION

For the Degree of B.S. in Mathematics and Physics

First Year

1. Plane and Spherical Trigonometry (Math. 3); Advanced Algebra (Math. 1); Engineering Drawing 1a, 1b; French 1 or 5, or German B or 1 or 4; Military 1, 2; Physical Training 1, 3 or 7, 9; Rhetoric 2.

2. Analytical Geometry (Math. 6); French 1 or 5, or German B or 3 or 6; Military 2; Physical Training 1, 3 or 7; Rhetoric 2; Electives.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; French 2 or German 4; Military 2.

2. Integral Calculus (Math. 9); French 2 or German 6; Military 2; Physics 1, 3.

Third Year

1. Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Least Squares (Math. 14); Calculus of Variations (Math. 20); Physics 5; Electives.

2. Geometry of Space (Math. 17); Differential Equations (Math. 16); Partial Differential Equations (Math. 25); Physics 5; Electives.

Fourth Year

1. Modern Geometry (Math. 23) or Invariants (Math. 12), or Theory of Functions (Math. 13); Theory of Potential and Spherical Harmonics (Math. 21, 22); Physics 6; Mathematical Seminary and Thesis (Math. 15); Electives.

2. Higher Plane Curves (Math. 18) or Algebraic Surfaces (Math. 24) or Theory of Functions (Math. 13); Physics 6; Mathematical Seminary and Thesis (Math. 15); Electives.

COURSE OF INSTRUCTION

For the Degree of B.S. in Mathematics and Astronomy

The freshman and sophomore years are the same as in the preceding scheme except that surveying (C. E. 10) is required the first year and that astronomy 4 takes the place of physics 1, 3, of the second semester, second year.

Third Year

1. Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Least Squares (Math. 14); Calculus of Variations (Ast. 11); Astronomy 5; Electives.

2. Differential Equations (Math. 16); Partial Differential Equations (Math. 25); Astronomy 6; Geometry of Space (Math. 17); Electives.

Fourth Year*

1. Theory of Functions (Math. 13); Astronomy 7; Astronomy 10 or Math. 15; Electives.

2. Theory of Functions (Math. 13); Astronomy 9; Astronomy 10 or Math. 15; Electives.

COURSE OF INSTRUCTION

For the Degree of B.S. in Astronomy and Physics

Freshman and sophomore years same as before excepting that astronomy 4 is required in the sophomore year.

Third Year

1. Astronomy 5; Least Squares (Math. 14); Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Calculus of Variations (Math. 20).

2. Astronomy 6; Differential Equations (Math. 16); Partial Differential Equations (Math. 25); Geometry of Space (Math. 17); Electives.

Fourth Year*

1. Astronomy 7; Physics 5, 6; Electives.

2. Astronomy 9; Physics 5, 6; Electives.

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* Astronomy 7 and 9 will be given in 1900-1901.

DESCRIPTION OF DEPARTMENTS

ASTRONOMY

The instruction given in astronomy is planned to meet the needs of four distinct classes of students, viz.: (a) those who do not wish to take the time necessary to become thoroughly familiar with the facts, principles, and methods of the science, but who desire a general acquaintance with its present state and some idea of how this state has been reached; (b) engineers whose work necessitates a practical knowledge of some parts of it; (c) those students of the College of Science who wish to specialize in the geological and biological sciences, and who require a more intimate acquaintance with astronomy than can be got in one term's work; (d) those students who wish to make astronomy their specialty.

In the first courses of instruction the work of the laboratory is subordinated to that of the recitation room, but as soon as the general notions of the science become fixed in his mind, the student is required to take data and solve practical problems in the Observatory. After the student has been given sufficient practice to enable him to comprehend and appreciate the more advanced subjects of theoretical astronomy, an opportunity is provided him to familiarize himself with these subjects by the lectures and work of the senior year.

For students of class (a), course 4, presupposing mathematics through trigonometry only, is offered; for the second, courses 4 and 6, requiring the same preliminary mathematics and a term's experience in practical work with instruments, is given; for the third, courses 4, 5, and 6, extending through four terms and requiring the same mathematical preparation as course 4; and for the fourth class, all astronomical courses from 4 to 13, inclusive, are offered. Courses 7 and 9 are to be given in alternate years with 12 and 13. The courses in astronomy 7, 9, and 10, as also 12 and 13, count either as graduate or as undergradu-

ate work, but neither set can count for both. The subjects treated in the astronomical seminary will be related to those considered in courses astronomy 7 and 9, and 12 and 13 respectively.

EQUIPMENT

The equipment of the astronomical department consists of a students' astronomical observatory, containing the following instruments:

An equatorial telescope of 12 inches aperture, the optical parts of which are by Brashear. The instrument was built and mounted by Warner & Swasey. It is provided with graduated circles, driving clock, filar micrometer, a complete set of positive and negative eyepieces, and a dial for setting in right ascension. The construction of the telescope is such that spectroscopic, or photographic, apparatus may be attached without further work on the mechanician's part; a new 4-inch equatorial by Saegmüller with graduated circles, driving clock, and eyepieces, and an old 4-inch equatorial by Newton & Co., to be used in photometric eye estimates; a combined transit and zenith telescope by Warner & Swasey, with the usual micrometer and a number of smaller instruments, such as chronometers, a Riefler clock, a polarizing photometer, an altazimuth, two chronographs, an Eastman personal equation machine, two sextants with mercurial horizons, two small astronomical transits, one of 21 inches focal length and $1\frac{7}{8}$ inches aperture, by Saegmüller, and one of 24 inches focal length and 2 inches aperture, by Newton & Co.; a Green's barometer and thermometer, a mier mark, and half a dozen masonry piers for portable instruments for the use of students in practical astronomy. A master clock for the electrical control of secondary clocks in the various buildings on the campus is mounted in the clock room of the Observatory.

MATHEMATICS

The courses offered in pure mathematics are so arranged as to meet the needs (a) of those who desire such mathe-

matical knowledge as is necessary to carry on investigation in some line of applied mathematics, and (b) of those who wish to make mathematics a specialty. The instruction is given, for the most part, by the aid of text-books, but several of the advanced courses are given by lectures with collateral reading. To cultivate a spirit of independent investigation, all senior and graduate students who make mathematics their major, are required to take in connection with their thesis a year's work (two-hour study) in the mathematical seminary, where the results of their investigation are presented and discussed. To the seniors and graduate students two lines of work in pure mathematics are offered, and each is given in alternate years.

Courses 10 to 25 count either as graduate or undergraduate work, but in no case as both.

EQUIPMENT

The department is supplied with eighty-five of Brill's mathematical models. The collection includes an excellent set of plaster models illustrating the properties of surfaces of the second order, a set of string models for ruled surfaces, a set of paper models illustrating the real circular sections of certain conicoids, a complete set of Brill's models for the theory of functions, and a collection of surfaces of third order.

THE NATURAL SCIENCE GROUP

AIMS

The courses of the natural science group are especially intended:

1. To give a thorough liberal education with a basis in the objective sciences.

2. To prepare for the pursuit of specialties in zoölogy, entomology, physiology, botany, or geology as a scientific career.

3. To lay in chemical and physiological work and study a liberal foundation for a course in medicine.

4. To prepare for the teaching of the natural or physical sciences in high schools and colleges.

Special advantages are offered graduate students for whose work the museums, laboratories, and libraries, and the field and experimental equipment of the University and of the associated State Laboratory of Natural History, furnish an extraordinarily full provision. The University Biological Station, at Havana, is regarded as one of the University laboratories, and work done there by students may receive credit like work in any of the other laboratories.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Art and Design 1, 2; 3 hours (p. 171).
Chemistry 1, 3a or 3b and 4; 10 hours.
German B or 1, 3, 4, 6; 20 hours.
Mathematics 1 to 4; 5 hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.

ELECTIVE*

List A (Major Courses)

Astronomy 4 to 6; 3 to 10 hours.
Biology 2; 5 hours.
Botany 1 to 5, 7, 9, 10; 10 to 44 hours.
Chemistry 2a, 5a, 5b, 5c, 7, 9, 9a or 9b, 12; 10 hours.
Geology 1, 2, 4; 5 to 20 hours.
Mineralogy 1, 2; 5 or 10 hours.
Paleontology 1; 5 or 10 hours.
Physics 1, 3; 9 hours.
Physiography 1; 5 hours.
Physiology 1, 2, 3, 5; 20 to 40 hours.
Zoölogy 1, 2, 3, 4, 6, 8; 5 to 45 hours.

*No number of hours in any subject will be accepted as major work other than the number specified against that subject in list A. Credit will not be given for both major and minor work in the same subject.

List B (Minor Courses)

Biology* 1; 5 hours.
Geology 3; 5 hours.
Physics 2; 5 hours.
Physiology 4; 5 hours.

The major and minor courses in lists A and B in this group are respectively the maximum offerings and the minimum requirements in the various subjects of these lists.

REQUIREMENTS FOR GRADUATION

In the natural science group a student may graduate from either a specialized or a general course.

A specialized course is one containing at least two years of major work in a single subject preceding the senior year, followed by an additional year of major work in that subject, and the writing of an acceptable thesis. No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work. Only those students who pursue a specialized course will, as a rule, be selected for fellowships, scholarships, and other similar University honors. A general course is one in which less than three years' work in any one line precedes graduation, and in which no thesis is required.

Students who specialize in geology or mineralogy may count all work done in these branches and their credits in chemistry in the list of credits required before the beginning of the senior year.

No student may graduate in natural science until he has completed all the required courses, has done at least thirty hours' work on one major elective, or forty hours' work on more than one such major (list A), and has taken at least minor courses in all the other electives in which such courses are offered (list B). The necessary number of one hundred and thirty hours for University studies may be made up by

* Not required if biology, or both zoölogy and botany, have been accepted for entrance.

additional elections from any courses offered in the College of Science or in the College of Literature and Arts the precedent requirements for which the student can meet.

A graduate from a four years' medical course at a school recognized by the University as of high rank may, if a matriculated student, receive for his professional medical studies credits in this group equal to one year's resident study at the University, being thus enabled to obtain his bachelor's degree in science after a three years' University course.

A student taking a three years' course of prescribed science work (see page 120), followed by three years of professional work at the University Medical College, may obtain for this joint six years' course the degrees of bachelor of science and doctor of medicine.

COURSES OF INSTRUCTION

The following list of prescribed studies and major electives shows the semesters in which the principal studies of the natural science group must be taken. The prescribed studies, which are in italics, must be taken also in the year indicated. Students intending to graduate from a specialized course should begin the study of their special subjects at the earliest time practicable.

FIRST YEAR

1. *Art and Design* 1; Advanced Algebra and Trigonometry (Math. 1, 3 or 2, 4); Biology 1; *Chemistry* 1; *Military* 1, 2; *Physical Training* 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Art and Design 2; Botany 1, 4, 5; *Chemistry* 2, 3a, or 3b and 4; *Military* 2; *Physical Training* 1, 3 or 7; Zoölogy 1, 7; Physics 2.

SECOND YEAR

1. Botany 2, 3; *German* B or 1 or 4; *Military* 2; Mineralogy 1; Physics 1, 3; Zoölogy 2, 5, 6; Biology 1.

2. Botany 1, 3, 4, 5; Geology 1; *German* B or 3 or 6; *Military* 2; Physics 1, 3; Zoölogy 1, 3 (Embryology), 4, 6 (Entomology), 7; Geology 3.

THIRD YEAR

1. Botany 2, 3, 7, 8, 10; *German* 4; Physiology 1; *Rhetoric* 2; Zoölogy 2, 4, 5, 6 (Entomology).

2. Botany 3, 4, 5, 10; *German* 6; Mineralogy 2; Paleontology 1; Physiology 1; *Rhetoric* 2; Zoölogy 3 (Embryology), 4, 6 (Entomology), 7; Biology 2.

FOURTH YEAR

1. Physiology 2; French 5; Economics 1 or Philosophy 2, 4, or 6; Physiography 1; Geology 4.

2. Thesis (Bot. 9; Geol. 4; Physiol. 3; Zoöl. 8); Biology 2; Physiology 2; Mineralogy 2; Paleontology 1.

FULL COURSE PRELIMINARY TO MEDICINE

To students who wish to select studies leading to a degree in natural science as a liberal preparation for a course in medicine, the following course or its substantial equivalent is recommended. Graduates from this course will be required to take only the professional subjects at the University Medical College before taking the medical degree.

FIRST YEAR

1. Art and Design 1; Elementary Chemistry (Chem. 1); Mathematics 1, 3 or 2, 4; Biology 1; Military 1, 2; Physical Training 1, 3 or 7, 9.

2. Descriptive Inorganic Chemistry (Chem. 2); Qualitative Analysis (Chem. 3a); Geology 3; Bacteriology (Botany 5); Military 2; Physical Training 1, 3 or 7.

SECOND YEAR

1. Vertebrate Zoölogy and Comparative Anatomy (Zoölogy 2); Quantitative Analysis (Chem. 5a); German B or 1 or 4 or Latin*; Rhetoric 2.

2. Physics 1, 3; Organic Chemistry (Chem. 9, 9c); German B or 3 or 6 or Latin; Rhetoric 2.

THIRD YEAR

1. Physiology 1; German 4; Psychology 4.

2. Physiology 1; German 6; Zoölogy 3.

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* Those who offer Latin for entrance must take German in this course; those who offer German for entrance should take its equivalent of Latin before going on with German in the University.

FOURTH YEAR

1. Physiology 2; French 5; Economics 1 or Philosophy 2, 4, 6.
2. Physiology 2; French 5; Economics 2 or Biology 2.

Prospective students in medicine not wishing to graduate here before taking their medical course will be assisted to make up special study lists.

COMBINED COURSE IN NATURAL SCIENCE AND MEDICINE

Students desiring so to relate their science work at the University and their professional course at the Medical College as to take both the science and the medical degrees at the end of six years, may accomplish this purpose by taking the following three years' course in the College of Science, with the professional studies of the medical course thereafter:

FIRST YEAR

1. Art and Design 1; Elementary Chemistry (Chem. 1); Mathematics 3 or 1 and 3 (Trigonometry); Biology 1; Military 1, 2; Physical Training 1, 3 or 7, 9.
2. Descriptive Inorganic Chemistry (Chem. 2); Qualitative Analysis (Chem. 3a); Physics 2; Bacteriology (Botany 5); Military 2; Physical Training 1, 3 or 7.

SECOND YEAR

1. Zoölogy 2; Quantitative Analysis (Chem. 5a); German B or 1 or 4 or Latin*; Rhetoric 2.
2. Zoölogy 3; Organic Chemistry (Chem. 9, 9c); German B or 3 or 6 or Latin; Rhetoric 2.

THIRD YEAR

1. Physiology 1; German 4; Psychology 4.
2. Physiology 1; German 6; Biology 2 or Economics 2.

SPECIAL SUGGESTED COURSES

As aids to election a number of outline courses have been arranged, covering all the requirements for graduation, and

* Those who offer Latin for entrance must take German in this course; those who offer German for entrance should take its equivalent of Latin before going on with German in the University.

making such a selection of studies within these limits as is best adapted to certain special ends. These courses are to be taken as suggestions only, made for the convenience of students. Students having definite objects in view which require a careful selection of studies are advised to consult with the Dean of the College before arranging their study lists. Outlines of specialized courses in each department may be had from the heads of departments, and complete tabulated outlines of the following described courses may be obtained from the Dean of the College.

Courses for Teachers—Four tabulated courses have been prepared for the benefit of prospective science teachers. These include a general science teacher's course, and courses for special teachers of biology, of physics and chemistry, and of geology and physiography. These courses are intended especially to prepare for the work of the science teacher in secondary schools, and with a proper course of graduate study following will also fit for instruction work in college science.

Women's Course in Science—This is a four years' course, arranged primarily for women students who wish a scientific education containing those subjects offered by the University which have a special bearing upon the management of the home. In addition to general courses in chemistry, botany, biology, physiology, and art and design, it contains a year's special work in household chemistry; special semester courses in art, architecture, horticulture, physiology, and economics; a year each in history and English literature, and the courses in mathematics, German, physics, and geology necessary to graduation in the natural science group.

Economic Entomology.—A complete four years' course has been arranged from the offerings of the natural science group for the benefit of those who wish to avail themselves to the fullest extent of the advantages offered at the University for the study of entomology, with special reference to its economic applications. It contains the substance of a liberal education in natural science and in supplementary subjects, with three years of major work in entomology, two of which

would ordinarily class as graduate work. Graduates from it will be unusually well prepared for service as experiment station entomologists or as entomological instructors in agricultural colleges and state universities.

DESCRIPTIONS OF DEPARTMENTS

BIOLOGY

Under this head two courses are offered: One of elementary work in general biology, made precedent to courses in botany and zoölogy; the other an advanced course, open only to students who have had a considerable amount of major work in zoölogy or botany or both, and intended to summarize, generalize, and extend the work of these courses on theoretical lines. Both elementary and advanced biology are taught conjointly by the departments of zoölogy and botany, the former being essentially a laboratory, and the latter a seminary course.

BOTANY

Ten courses of instruction are offered in this subject, each extending through one semester or through the year. The first two courses, each of one semester, are intended to serve a double purpose of an introduction to the work which follows for students making botany a specialty, and to afford other students an opportunity to gain the general facts of the science and to acquaint themselves with the methods of instruction. Each course as enumerated counts as major work. To a very large extent natural objects are studied rather than books, but constant endeavor is made to introduce students to pertinent existing literature. In the laboratory much use is made of the compound microscope, and special attention is given to its manipulation for best results, and to the preparation of objects. Course 8 is devoted to economic botany.

EQUIPMENT

The botanical laboratories are: One of large size with full equipment of microscopes, microtomes, aquaria, models,

charts, etc., for general work; one specially arranged and fitted up for bacteriological instruction and investigation, supplied with sterilizers, thermostats, microscopes, a full line of glassware, metal vessels, and chemicals; one adjoining the latter and used in connection with it for vegetable physiology, and having attached a glazed structure, two stories in height, well adapted to facilitate experiments upon living plants and for the growth of specimens required in the laboratories. There are also provisions for private laboratory work by instructors. The department is furnished with a lecture room; a room for the herbarium and facilities for work in connection therewith; work rooms for the preparation of specimens and material; storage rooms for apparatus, utensils, reagents, and materials; dark room for photography; rooms for offices—all in convenient association and provided with the necessary materials and apparatus for ordinary class work and for advanced research.

Special attention has been given to parasitic fungi; and the collections of specimens and of the literature upon the subject are ample for various lines of original investigation.

GEOLOGY, MINERALOGY, AND PHYSIOGRAPHY

In this department four courses are offered in geology, two in mineralogy, one in paleontology, and one in physiography.

For students who wish more than a general acquaintance with these subjects, courses aggregating forty-five hours of class room and laboratory instruction have been arranged in geology, mineralogy, and paleontology, viz., mineralogy 1, 5 hours; geology 1 and 2, 10 hours; mineralogy 2, 5 hours; physiography 1, 5 hours; paleontology 1, 10 hours; geology 4, 10 hours. (See pages 215, 241, 247, 253.)

To those who desire merely an outline of the most prominent facts and theories of geology, with some idea of the methods by which the geologist arrives at his conclusions, a course of five hours (geology 3) is offered.

EQUIPMENT

The department occupies three students' laboratories, an instructors' laboratory, a lecture room, two collection rooms, a store room, a dark room for photography, and a private office.

Apparatus.—The laboratories contain individual desks for fifty-six students. Each desk is furnished with reagent bottles, Bunsen burners, and all the other apparatus now considered necessary to a complete outfit for blowpipe work in a first-class laboratory. They are also provided with a spectroscope, specific gravity and analytical balances, chemical hoods, a muffle furnace, contact and reflecting goniometers; lithological microscopes; crystal models (575); thin sections of minerals and rocks (745); an apparatus for cutting and grinding thin sections of rocks, with a Jenney motor; apparatus for micro-chemical analysis; a self-registering barometer; an aneroid barometer and a telescopic hand level for topographic work.

For the recitation room there is a set of Kiepert's physical maps; Ramsay's orographic map of the British Isles; Haart's Alps; Chauvanne's Asia; Sydow-Habenicht's Hand Atlas; geological and soil maps of Illinois; a series of geological maps of the United States, representing land development during the successive periods; a set of charts illustrating orography, erosion, deposition of metals, etc., a set of physiographic models; a series of relief maps; 600 topographic sheets and a large contour map of the United States from the U. S. G. S.; a complete lantern outfit, with microscopic and solar attachment; seven hundred lantern slides; an equipment for photography and the manufacture of lantern slides.

Materials.—The collection of fossils comes principally from the paleozoic, but includes a representative series from the higher groups. It contains 45,000 specimens (seven hundred and forty-two of the types described in the reports of the Illinois geological survey are included) and 200 thin sections of corals and bryozoa.

The collection of minerals contains 10,900 specimens, and

that of rocks 5,500 specimens, among which is a large number of polished granites, marbles, and other ornamental building stones.

There is also a collection of Illinois soils containing 104 specimens; and a large collection of Illinois clays with their manufactured products.

PHYSIOLOGY

The special objects of the courses in physiology are as follows: (1) To give to prospective students of medicine a detailed practical knowledge of the normal histological structure and vital processes of the body, and a working familiarity with the instruments of precision used in the investigation of disease. (2) To give to students of all branches of biology a training in deducing logically necessary conclusions from data obtained by their own observations. (3) To furnish such a knowledge of physiology as will serve as a basis for future studies in hygiene.

The laboratory method of instruction is chiefly followed, supplemented, when desirable, by lectures, demonstrations, references to standard literature, and recitations. The laboratory work predominates in the major and advanced courses; the lectures, demonstrations, and recitations in the minor course.

EQUIPMENT

The department of physiology occupies four rooms in Natural History Hall; a general laboratory, a lecture room and a private laboratory on the top floor and an animal room in the basement. The general laboratory, thirty-five by fifty-six feet, is fitted at one end with desks of the most approved pattern for chemical and similar work, and at the other end with heavy tables, especially designed for use with the microscope and other apparatus requiring a stable support.

The department is equipped with a full set of apparatus for lecture demonstration and for laboratory work. Much of this apparatus has been recently imported from Europe

and is of the latest and best pattern. Much of it is adapted to the most delicate work of demonstration or research, and is not to be found in the average physiological laboratory. Among such apparatus may be mentioned a Zeiss micro-spectroscope for work with minute quantities of material—as blood stains in medico-legal investigations; a hæmacytometer of Gowers and of Thoma-Zeiss; Fleischl's hæmometer, DuBois Reymond induction coil, latest pattern; DuBois Reymond myographion with tuning fork and Desprez signal for measuring intervals of less than one-thousandth second; ergograph; Zimmermans-Ludwig's drum kymograph, latest pattern; Fick kymograph; sphymograph (Marey); Fleischl's spectro-polarimeter; Knop azotometer; a Kjeldahl apparatus and a complete set of Hempel's apparatus for gas analysis (technical).

The histological equipment includes a Bausch & Lomb microscope with nosepiece and sub-stage illumination for use of each student, and all the accessory apparatus and reagents for class work or research in histology. There is also a cabinet of histological specimens to which the students have access for study or reference, but the subject is taught with all the details of technique, and the student is required to prepare and examine his own material, and the specimens thus prepared remain his own property, and are of considerable value.

ZOOLOGY

Zoölogy is taught in eight undergraduate courses, three of which are entomological, and in two graduate courses, one of which is entomological. Entrance upon the work in this department is conditioned upon general elementary biology (biology 1), upon elementary entomology (zoölogy 5), or upon high-school zoölogy or biology. The courses are so organized as to lead through zoölogy 1 and 2 to advanced zoölogical work; through course 1 alone (invertebrate zoölogy), or through course 5 (elementary entomology) to general entomology; through course 2 alone (vertebrate zoölogy and comparative anatomy) to embryology and

physiology and the University preparation for medical study. One semester's work in practical entomology, intended primarily for the College of Agriculture, is offered to all University students without preliminary conditions.

EQUIPMENT

The equipment of the zoölogical department is contained in four students' laboratories, an instructor's laboratory, a lecture room, a private office, a store room, and a dark room for photography. It includes twenty aquaria, forty-eight compound microscopes of the best makes, microtomes of five patterns, and the usual equipment of incubators, paraffin baths, etc. Advanced and graduate students have the free use of the library and equipment of the State Laboratory of Natural History, which occupies rooms in Natural History Hall. They are also admitted to the privileges of the University Biological Station, at Havana, Illinois, and will be given credit for regular work done there. They are thus afforded ample opportunity for prolonged original work in several departments of zoölogical science, especially in those relating to the zoölogy of Illinois. The Bulletin of the State Laboratory is open to graduates for the publication of their papers.

Entomological students have similar access to the collections and resources of the State Entomologist's office, including a well-equipped insectary for experimental investigation.

THE PHILOSOPHICAL GROUP

AIMS

The philosophical group includes those sciences which deal both with man as an individual, in the mental and moral spheres, especially as these are connected with his physical being, and also with man in society. The branches of knowledge included in the group occupy a place among the divisions of biological science, and it is intended to carry the spirit of biology, in the commonly accepted sense, into the investigation of these subjects. The general purpose

of the group is the study of the character and development of the individual and of society, of the relations of man to external nature, of the influence of natural selection on social development, and, finally, of the possible effect of artificial selection on that development, through both subjective and objective influences.

Under this caption the subjects of psychology, pedagogy, economics, public law and administration, and philosophy are offered in the College of Science as electives to all chemical and natural science students, and to all students who desire to specialize in the philosophical subjects, with studies in the physical and natural sciences as a preparation for them. All the studies of this group are junior and senior subjects.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

The same as in either the natural science or the chemical and physical group, pp. 103, 119.

ELECTIVE

List A (Major Courses)

Economics 1 or 2 to 8, 11 to 19; 2 to 44 hours (p. 171).
Pedagogy 1 to 8; 3 to 20 hours.
Philosophy 1 to 8; 3 to 24 hours.
Psychology 1 to 5; 3 to 24 hours.
Public Law and Administration 1 to 9; 6 to 31 hours.

List B (Minor Courses)

Economics 1; 5 hours.
Philosophy 2; 3 hours.
Psychology 1; 5 hours.
Public Law and Administration 1; 6 hours.

REQUIREMENTS FOR GRADUATION

In this group, as in the natural science group, a student may pursue either a specialized or a general course (p. 121).

To graduate from the College of Science in the studies of this group, in a general course, the student must either complete the subjects of the prescribed list in the chemical

group (p. 103), or must carry those of the corresponding list in the natural science group (p. 119) and earn twenty hours additional credit for major natural science studies, ten of which must be biological. He must further do forty hours' major work, or their equivalent, on subjects in the philosophical group; must take minor courses in all the philosophical subjects (except pedagogy) in which he has not completed a major course.

To graduate from this group in a specialized course the student must meet the general requirements for specialized courses, relating to thesis and amount of work required in the major subject.

Those who specialize in psychology may count all hours gained in that department, and any ten hours earned previous to the senior year in anthropology, botany, 1, 2; physiology 4; philosophy 1, 2, 6, 8; zoölogy 1; economics 17.

DESCRIPTION OF DEPARTMENTS

ECONOMICS

The instruction in this subject is based on the work of the first two years in science. The relation of the study to the biological sciences, commonly so called, is emphasized and kept steadily in view. In the courses in sociology the aim is to trace the evolution of society from primitive forms to its present complex structure, to examine the nature of its environment and its adaptation thereto, its present normal character and operations, and the forces, subjective and objective, which are at work tending to change its structure.

PEDAGOGY

See same in the College of Literature and Arts, p. 75.

PHILOSOPHY

The work in this department includes history of philosophy, metaphysics, ethics, and logic. The object of the courses is threefold:

1. To meet the wants of those who desire to specialize.
2. To give those who desire a more general knowledge

of these subjects some familiarity with the sphere of philosophical speculation and with the philosophical method as applied to the principles and presuppositions of the various sciences.

3. To show the relation of philosophy to practical life and the value of its study as a means of general culture.

PUBLIC LAW AND ADMINISTRATION

See same in the College of Literature and Arts, p. 76.

PSYCHOLOGY

The object of this department is twofold. The aim is, first, to acquaint the student experimentally with psychic phenomena and to make him familiar with recent literature and standard authorities; and, second, to make contributions to the science itself.

The student is from the first required to deal with the subject as an experimenter, and thus given a practical knowledge of the phenomena which he is to handle. The laboratory is well equipped with materials and apparatus for the continuation of this work through a large number of classical experiments upon sensation, which the student is required to conduct himself and of which a careful record is kept. The higher mental functions are then studied in a similar way, and the experimenter held responsible for the purity of the experimental conditions and the method of procedure. The history of psychology is also taken up. A full line of periodical literature is made accessible by the University, and this serves as the basis of reports in the seminary. In order to give a comprehensive survey of psychic activities, the genesis of mind with its accompanying development of neural structure is traced from the lower forms of life to its culmination in adult man.

For the accomplishment of the second aim of the department, that of original research, the laboratory is well equipped with suitable apparatus and every incentive is given toward a high grade of work. Investigations not immediately connected with the laboratory are also encouraged.

COLLEGE OF AGRICULTURE

FACULTY

Andrew S. Draper, LL.D., President.
Eugene Davenport, M.Agr., Dean, Animal Husbandry.
Thomas J. Burrill, Ph.D., LL.D., Botany and Horticulture.
Stephen A. Forbes, Ph.D., Zoölogy.
Charles W. Rolfe, M.S., Geology.
Donald McIntosh, V.S., Veterinary Science.
Arthur W. Palmer, Sc.D., Chemistry.
Samuel W. Parr, M.S., Applied Chemistry.
David Kinley, Ph.D., Economics.
Albert P. Carman, Sc.D., Physics.
Evarts B. Greene, Ph.D., History.
George T. Kemp, Ph.D., M.D., Physiology.
Jacob K. Shell, M.D., Physical Training.
Perry G. Holden, M.S., Agronomy.
Harry S. Grindley, Sc.D., Secretary, Chemistry.
Herman S Piatt, Ph.D., French.
Frank Smith, A.M., Zoölogy.
Oscar Quick, A.M., Physics.
Joseph C. Blair, Horticulture.
Wilber J. Fraser, B.S., Dairying.
Lucy H. Carson, A.M., English.
William J. Kennedy, B.Agr., Animal Husbandry.
John W. Lloyd, B.S.A., Horticulture.
George M. Holferty, M.S., Botany.
Hugh E. Ward, M.S., Soil Physics.
Oscar Erf, B.S., Dairying.
George D. Hubbard, M.S., Geology.
Archibald D. Shamel, B.S., Farm Crops.

FRED R. CRANE, B.S., Farm Mechanics.
ALBERT R. CURTISS, Woodworking.
HENRY JONES, Blacksmith.

AIMS AND SCOPE

The College of Agriculture offers students an education which fits them for the business of farming and at the same time furnishes them a means of culture. This education is, therefore, partly technical and partly cultural. Its end is the training of students not only to be good farmers, but good citizens and successful men. In other words, it seeks to provide an education suitable to the needs of rural people in a democracy.

The technical portion of the course offered in the College of Agriculture constitutes about one-half of the whole work. In studying these technical subjects the aim is not so much to teach rules of practice as to make plain the principles of agricultural science. Of the remaining portion of the course, twenty hours are prescribed in the sciences. Since the technical subjects are also of a scientific character, the course as a whole is essentially scientific, rather than literary; yet the College is mindful of the educational importance of history, literature, language, and the political sciences, and reasonable attention is, therefore, given to these subjects.

METHODS OF INSTRUCTION

Of the twelve instructors in technical subjects, eleven devote their entire time to agriculture. Instruction is by laboratory work supplemented by text-books, lectures, and reference readings which are almost constantly assigned from standard volumes and periodicals. The student is brought into close practical contact with his subject. He takes levels, lays tile, tests the draft of tools, traces root systems of corn and other crops, tests germination of seeds, does budding, grafting, trimming, and spraying, and works out problems in landscape gardening. He tests milk, operates separators, makes and judges butter and cheese. He studies cuts of

meat and samples of wool, judges a great variety of animals, and has practice in diagnosing and treating their diseases.

EQUIPMENT

The College keeps on deposit from the largest manufacturers thousands of dollars worth of plows, cultivators, planters, cutters, shellers, grinders, mowers, binders, engines, etc. It has extensive collections of agricultural plants and seeds and their products. A laboratory is well equipped with apparatus for the study of soil physics and bacteriology. The grounds of the University and the fields and orchards of the Experiment Station are always available for illustration in class work. An illustrative series of colored casts of fruit and enlarged models of fruits and flowers, collections of seeds and woods, cabinets of beneficial and noxious insects with specimens of their work, photographs, maps, charts, drawings, lantern slides,—all afford valuable material for study and illustration.

Specimens of Morgan horses; Shorthorn, Jersey, and Holstein-Friesian cattle; Shropshire, Merino, and Dorset sheep, and Berkshire swine afford material for judging, which, however, is vastly increased by loans from prominent herds. In the dairy department is a complete outfit for a milk-testing laboratory and for cream separation and butter and cheese making. The department of veterinary science owns a collection illustrating materia medica, a collection of pathological specimens illustrating special abnormal bony development, and a papier maché model of a horse, capable of dissection, and showing every important detail of structure. In addition are levels, lanterns, microscopes, and cameras, an extensive list of agricultural journals, a complete file of experiment station bulletins from all the states, and an excellent assortment of standard reference books, including nearly all the pedigree registers published.

DESCRIPTION OF DEPARTMENTS

DEPARTMENT OF AGRONOMY (p. 172).

The Department of Agronomy, with four teachers, gives instruction in those subjects that relate especially to the field and its affairs, as drainage, farm machinery, field crops, the physics and bacteriology of the soil, manures, rotation and fertility, the history of agriculture, farm management and comparative agriculture. The object is to acquaint the student with the facts and principles connected with the improvement of soils, the preservation of fertility, the nature of the various crops, and the conditions governing their successful and economic production and with the development of agriculture. This object is attained by the application of the laboratory methods of study to these subjects and by free use of standard literature.

ANIMAL HUSBANDRY (p. 176).

In this department two instructors give courses covering the types of domestic animals, the separate study of sheep, swine, beef, and dairy cattle and their products, heavy and light horses with their care and training, the management of farm herds, and the principles and practices of feeding and of breeding. The object is to familiarize the student with animals, first as to their fitness for specific purposes; second, as to their care and management; third, as to their improvement by breeding, and fourth, as to the commercial production of animal products. This familiarity is gained by an exhaustive study of the uses of domestic animals; the history and character of their breeds, together with extensive practice in stock judging, supplemented by a careful study of the methods of successful stockmen and of the known principles of feeding and of organic evolution.

DAIRY HUSBANDRY (p. 203.)

Two instructors give extended courses in the study of milk and in dairy bacteriology, in the separation of cream and

the making of butter and cheese, in factory management, city milk supply and the management of dairy farms.

The object is to familiarize the student with milk and its products, together with their economic production and their proper care and delivery to the customer in an acceptable form and free from contamination. This is accomplished by a preliminary and exhaustive study of milk, as to its normal character and composition, and the accidents to which it is subject, followed by practice in the various processes in the successful manufacture of dairy products.

HORTICULTURE (p. 221).

Three instructors conduct courses in orchard management, small fruit culture and vegetable gardening; in nut culture, floriculture, landscape gardening, and forestry; in fruit propagation, greenhouse management, and the evolution of cultivated plants; and in commercial horticulture and nursery management. The purpose is to acquaint the student with the principles and practices of fruit raising and vegetable gardening, both for home and market, and with successful methods of combating insect and fungous enemies. The sense of the beautiful is cultivated and given expression in floriculture and landscape gardening to the end that more of nature's beauty shall pervade the home and its surroundings. The student studies plant life, how to propagate, cultivate, and improve the forms that have been found useful or ornamental in the way of vegetables, fruits, flowers, and trees. As in other departments, he follows the methods of the laboratory in that he learns to do by doing, supplementing everything by numerous references to standard literature.

VETERINARY SCIENCE (p. 260).

Courses are offered in veterinary anatomy and physiology, materia medica, theory and practice of veterinary medicine and surgery, and veterinary sanitary science. The object is to acquaint the student with the structure and activities of the animal in health, the characteristic symptoms of disease and the materials and methods of successful treatment. He

therefore makes careful study of the structure of domestic animals, of the nature of their derangements and the characteristic action of remedial agents, and the weekly clinic gives opportunity for practical experience in the diagnosis and treatment of the more ordinary diseases.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Agronomy 1, 1a, 3, 5; 15 hours.
Animal Husbandry 1, 2, 9; 10 hours.
Botany or Zoölogy, 10 hours.
Chemistry 1, 3b, 4; 10 hours.
Dairy Husbandry 1; 5 hours.
Economics 2; 2 hours.
English 1; 5 hours.
Horticulture 1, 10; 8 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.
Veterinary Science 5; 2½ hours.

ELECTIVE

List A

Agronomy 1b, 2, 2a, 3a, 4, 6, 7, 8, 9, 10; 2½ to 45½ hours.
Animal Husbandry 3, 4, 5, 6, 7, 8, 10; 2½ to 27½ hours.
Dairy Husbandry 2, 3, 4, 5, 6, 7, 8, 9; 2½ to 27½ hours.
Horticulture 2 to 9 and 11 to 19; 2 to 72 hours.
Veterinary Science 1, 2, 3, 4; 5 to 25 hours.

REQUIREMENTS FOR GRADUATION

Students will be graduated with the degree of bachelor of science in agriculture upon completing the following work:

1. The studies of the prescribed list.
2. Studies aggregating twenty semester hours, chosen from the elective list A.
3. Studies aggregating twenty-nine semester hours, chosen from any subjects offered in the University (p. 171),

which the student is prepared to take, and which are not included in the prescribed list, or list A.

4. An acceptable thesis upon an approved course of investigation, for which from five to ten semester hours will be allowed, according to the nature of the subject. Credit for this will be included in the amount to be earned by elective work.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Agriculture

First Year

1. Chemistry 1; Dairy Husbandry 1 or Horticulture 1; English 1; Military 1, 2; Physical Training 1, 3 or 7, 9; Rhetoric 2.

2. Agronomy 1, 1a or Animal Husbandry 1, 2; Agronomy 3; Chemistry 3b, 4; Military 2; Physical Training 1 and 3 or 7; Rhetoric 2; Elective.

Second Year

1. Botany or Zoölogy; Dairy Husbandry 1 or Horticulture 1; Military 2; Electives.

2. Botany or Zoölogy; Agronomy 1a or Animal Husbandry 1, 2; Military 2; Electives.

For the third and fourth years the work is largely elective, and no suggestions are offered, except that Agronomy 5 and Animal Husbandry 9 should be taken during the third year. Should the student elect five or more hours in Veterinary Science, the prescribed minor in that subject will not be exacted.

GRADUATE SCHOOL

ORGANIZATION

The Council of Administration of the University is in charge of the Graduate School, and the executive officer, to whom communications should be addressed, is the Dean of the Graduate School.

ADMISSION AND REGISTRATION

Graduates of the University of Illinois, and of other colleges and universities of approved standing, may be admitted to membership in the Graduate School upon presentation of their credentials. Other persons suitably qualified may gain admission by special vote of the Council of Administration upon such conditions as may be imposed in each case. Candidates for admission may secure application blanks from the Dean or the Registrar of the University, and these, properly filled out, should be filed, together with such documentary matter as may be presented showing qualifications for membership in the school, with the former officer. This should be done not later than the time set for registration in September. Admission may be granted at other times, but the time limit required for degrees counts from the date of the certificate of membership.

With the exceptions named below, all members of the Graduate School are required to be in regular attendance at the University, and to do all the work for which they are registered in the departments to which such work belongs. In case of absence on leave, or when absence is necessary to carry on investigations included in approved courses of study, the requirement of continuous residence may be modified by the Council of Administration.

Graduates of this University may be admitted as non-resident members of the Graduate School; and all members

of the School who have completed the residence period required for advanced degrees may register as non-residents while completing the work required for such degrees.

Members of the Graduate School register with the Dean during the registration period of each semester. This in the case of non-residents may be done by letter stating the work to be undertaken during the ensuing half-year.

STUDIES AND EXAMINATIONS

As far as can be indicated by a statement of time, full work for a graduate student consists in the use of forty-five hours a week in the lecture rooms, laboratories, etc., and in private study. Assignments of work are made upon this basis; but great variations naturally result from the subject-matter in hand, and from the abilities of individuals. Each student must select one principal line of study, called his major subject, and upon this major subject at least one-half of his work must be done; and any greater proportion of his time, up to the whole of it, may be thus devoted if proper approval is had. When work upon the selected major subject is not arranged to require all of the student's attention, he must choose one or two minor subjects, as may be necessary to complete a full course of study. Usually, at least one minor subject should be taken. Not more than two may be taken at the same time.

The major study must be approved as graduate work for this University. The minor subjects may, under approval, be chosen from the offerings to graduates, or, except in the College of Engineering, from undergraduate courses exclusive of those usually open to freshmen. But all candidates for advanced degrees must direct their selection toward some well-defined end, determined for the most part by the character and purpose of the major study.

In architectural and engineering subjects, at least the major line of study and not less than two-thirds of the entire work must be taken from lists marked "primary,"* and any

* See the courses for graduates in architecture and other engineering courses, in the "General Description of Courses," pp. 184, 202, 212, 238, 243.

remaining amount to complete a full course may be taken from those designated "secondary," under the same head with the primary list.

All courses of study leading to degrees in the Graduate School are subject to approval, first, by the head of the department of the University in which the major subject for each student belongs; second, by the Dean of the College including such department; and, third, by the Dean of the General Faculty. The signatures of the heads of departments in which chosen minor subjects belong must also be obtained before the list reaches the Dean of the General Faculty. The lists of studies, as finally approved, are deposited with the Registrar of the University. No changes may subsequently be made except under the same line of approvals, but extension of time may be arranged with the professors concerned and with the Dean of the General Faculty.

Examinations are required in all subjects, and reports upon these are made to the Registrar of the University. Graduate students in undergraduate classes are examined with these classes.

The head of the department in which the student does his major work is charged with the direction and supervision of such major work, and, in a general way, with the supervision of the student's entire course of study. He fixes the time and method of all examinations not otherwise provided for, sees that they are properly conducted, and reports results to the Registrar. It is his duty also to keep the Dean of the General Faculty informed concerning all matters affecting the interests of the student, and of the School in connection therewith.

DEGREES AND FELLOWSHIPS

A full statement regarding the degrees conferred by the University may be found on later pages of this catalogue, and in the same connection an account of fellowships. (See pp. 264 and 268.)

STATE LIBRARY SCHOOL

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
KATHARINE L. SHARP, PH.M., B.L.S., DIRECTOR, Library Economy.
MAUDE W. STRAIGHT, A.B., Reference.
MARGARET MANN, Library Economy.
GRACE O. EDWARDS, B.S., B.L.S., Cataloging.
CECILIA B. MCCONNEL, Library Economy.
EMMA R. JUTTON, B.L.S., Library Economy.

AIMS AND SCOPE

The *Library School,* which had been conducted at Armour Institute of Technology, Chicago, since September, 1893, was transferred to the University of Illinois in September, 1897.

The scope of the work of the School has been broadened since the time of the transfer. There is now offered a four years' course of study, leading to the degree of bachelor of library science. Two years of the course are devoted to general university studies, and this is the smallest preparation which will be accepted for entrance upon the technical work. Students are encouraged to complete a four years' college course before applying for admission. This high standard is necessary because conditions in library work are rapidly changing. It is not enough to have a knowledge of books, nor is it enough to have a knowledge of methods. One or two years of training will not take the place of years of experience, but they will make the student more adaptable and general library service more intelligent.

Instruction is given in each department of library

administration. Stress is laid upon simplicity and economy, although elaborate methods are taught to enable students to work in large libraries where bibliographic exactness is required. The higher side of library work is emphasized throughout the course, and students are taught their responsibility to the schools, to the clubs, to the factories, to university extension, and to the people as organized bodies and as individuals.

It is the purpose of the University to graduate librarians who are not only trained, but educated; librarians who are not only equipped in technical details, but filled with an appreciation of their high calling to furnish "the best reading to the greatest number at the least cost."

The School offers a course of twelve lessons, open to all students of the University, on the use of the library and the ordinary reference books.

METHODS OF INSTRUCTION

There are so few text-books on library economy that instruction is given almost altogether by lecture and laboratory methods. References to books and periodicals are given for collateral reading, and individual research is encouraged from the start. Lectures are illustrated by the collections of forms and fittings and each student is expected to do a certain amount of practical work in the University library each day. Before completing the course, each student must have had actual experience in every department of the library. Class room work is tested by problems, and examinations take the form of problems wherever practicable.

LOCAL LIBRARY CO-OPERATION

The Library of the University of Illinois, the Champaign public library, and the Urbana public library have systematic plans for coöperation through the Library School, in the interests of the clubs and the schools. The club work is in successful operation. Each woman's club in the two towns

has been asked to send its program for the year to the Library School. Here a reference list is made out on each subject, specifying in which of the three libraries the material is to be found. A copy of each list is posted in each library and a copy is sent to the lady having to present the subject.

The Urbana public library has given all its field work to the Library School. The students keep up a birthday bulletin, and advertise timely subjects and holiday observances, by means of attractive posters. The seniors prepared a slip charging system for the library, which formerly used a ledger. The seniors also prepare purchase lists of new books for the library.

The Champaign public library has opened an attractive children's room and on each Saturday afternoon some member of the Library School talks to the children in this room.

EQUIPMENT

The most valuable equipment is the working library of the University.

The Library School has the complete collection of manuscript notes and problems which have been prepared since the school opened in 1893. As text-books are so few, this collection is invaluable. A collection of library reports and catalogs and of mounted samples, showing methods of administration in all departments, is carefully classified and is continually increasing. A collection of card catalogs of various forms has been made, including the book forms from Leyden, Holland; Cassel, Germany; and Florence, Italy; the Rudolph indexer and the modern forms approved by the American Library Association. Other forms are represented by photographs.

The School has a collection of printed blanks and forms illustrating methods of administration in different types of libraries, many labor-saving devices, and samples of fittings for all departments. The School received much material from the World's Columbian Exposition in 1893, and is con-

stantly receiving additions from librarians and manufacturers throughout the country.

A collection of cataloging rules and of classification systems is making for comparative study. A number of devices and patents, such as temporary binders, pamphlet cases, newspaper files, etc., have been contributed by inventors and manufacturers.

REQUIREMENTS FOR GRADUATION

Credit for 65 hours (p. 171), including the prescribed military and physical training, in addition to two years' prescribed technical library work, is required for graduation. The technical work is of junior and senior grade, and must be taken at the University, but the work of the first two years covers general university studies and may be taken at any college from which credits are accepted.

COURSE OF INSTRUCTION

Required for the degree of B.L.S.

The work of the first two years may consist of any of the courses offered in the University, the requirements for which students can meet.

THIRD YEAR

1. Elementary Library Economy (Lib. 1); Elementary Reference (Lib. 2); Selection of Books (Lib. 3); Elementary Apprentice work (Lib. 4).

2. Elementary Library Economy (Lib. 1); Elementary Reference (Lib. 2); Selection of Books (Lib. 3); Elementary Apprentice Work (Lib. 4).

FOURTH YEAR

1. Selection of Books (Lib. 3); Advanced Library Economy (Lib. 5); Bibliography (Lib. 6); History of Libraries (Lib. 7); Advanced Reference (Lib. 8); Advanced Apprentice Work (Lib. 10).

2. Selection of Books (Lib. 3); Advanced Library Economy (Lib. 5); Bibliography (Lib. 6); Advanced Reference (Lib. 8); Book-making (Lib. 9); Advanced Apprentice Work (Lib. 10); Thesis (Lib. 11).

SCHOOL OF MUSIC

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
WALTER HOWE JONES, DIRECTOR, Piano.
ALISON MARION FERNIE, R.A.M. (London), P.A.M. (Philadelphia), Voice.
RALPH WYLIE, Violin.
JESSIE YOUNGE FOX, Piano.
EMMA QUINBY FULLER, Voice.

AIMS AND SCOPE

The School of Music offers courses leading to the degree of bachelor of music.

The courses are widely varied. Although regular courses are laid out, students may spend an indefinite amount of time in the study of an instrument or of the voice.

The course in the history of music, as well as the work in the University Orchestra and the University Choral Society, may be taken by regular students in other departments.

A course of artists' concerts is given each season under the management of the University Choral Society. In these concerts, to which an admission fee is charged, only artists of the best reputation appear.

The instructors in the School of Music give recitals and lectures on musical subjects during the year.

REQUIREMENTS FOR GRADUATION

Credit for 130 semester hours, including military and physical training credit, together with an acceptable thesis, is required for graduation with the degree of bachelor of

music. The thesis required for graduation must be on a topic related to music.

Students who are not working for a degree in music may receive a certificate of work done by complying with the following conditions:

Students of the piano, organ, or violin must complete the entire course specified for these instruments; must also complete the work offered in harmony, covering thirteen hours, and must take one year's work (ten hours) in either German or French.

Students of the voice must complete the entire course offered in vocal work, the thirteen hours' work in harmony and two years' work on the piano, besides taking one year (ten hours) of German or French, and one year (ten hours) of Italian.

Special and preparatory music students are required, in addition to their practical work in music, to pursue other lines of study sufficient to fill in their spare time.

Students enrolled in the department of music only pay no semester fees, but must pay the music fees. (See p. 283.)

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Music 1; 2 hours (see p. 171).
Music 2a; 13 hours.
Music 2b; 3 hours.
Music 2c; 3 hours.
Music 2d; 3 hours.
Music 3b, 4b, 5b or 6b; 56 hours.
French or German; 10 hours.
Italian 1; 10 hours.
Mathematics 4; 2 hours.
Military 1, 2; 5 hours.
Physical Training—
    Men, 1, 3; 2½ hours.
    Women, 7, 9; 3 hours.
Physics 2; 5 hours.
Rhetoric 1; 6 hours.

The remaining hours of credit may be obtained in electives offered in the College of Literature and Arts, choice of subjects being left to individual students.

MUSICAL ORGANIZATIONS

The University Glee Club is an organization for men. Membership is decided by competition and is limited to sixteen in number. The club meets twice a week for rehearsal.

The Ladies' Glee Club is an organization for the young ladies of the University, and is in charge of the head of the vocal department.

The Mandolin and Guitar Club is open to young men who play these instruments. Membership is decided by competition, and the club is associated with the Glee Club in its concerts.

The Military Band is conducted by the director of the School of Music. It furnishes music for important University occasions and appears at battalion drill of the military department, besides giving several concerts during the year. Membership is limited to thirty in number and is decided by examination.

The University Orchestra meets for a two hours' rehearsal once a week, and is open to all students who play any orchestral instrument ordinarily well.

The University Choral Society is conducted by the head of the vocal department of the School of Music, and meets once a week for rehearsal of choral works. Membership is free to students. Singers not connected with the University are admitted on the payment of a small fee.

COLLEGE OF LAW

FACULTY

Andrew S. Draper, LL.D., President.

James B. Scott, A.M., J.U.D., Dean, Constitutional and International Law, Equity, and Real Property.

Charles C. Pickett, A.B., Contracts, Sales, and Carriers.

William L. Drew, LL.B., Torts, Agency, Common Law Pleading.

Thomas W. Hughes, LL.M., Evidence, Bills and Notes, Corporations.

Charles W. Tooke, A.M., Domestic Relations, Damages, and Wills.

LECTURERS

Hon. Oliver A. Harker, Judge of the Appellate Court of the State of Illinois, Lecturer on Criminal Law.

Hon. Benjamin R. Burroughs, Judge of the Appellate Court of the State of Illinois, Lecturer on the Law of Real Property.

Hon. Francis M. Wright, Judge of the Appellate Court of the State of Illinois, Lecturer on the Law of Easements.

Hon. Calvin C. Staley, County Judge of Champaign County, Lecturer on Probate Law and Administration of Estates.

Hon. Orrin N. Carter, County Judge of Cook County, Lecturer on Election Laws and Revenue Law of the State of Illinois.

Special courses of lectures will also be given by other gentlemen.

REQUIREMENTS FOR ADMISSION

1. All applicants for admission to the College of Law must be at least 18 years of age and of unquestioned character.

2. Graduates of colleges and of scientific schools of approved standing are admitted upon diploma or certificate without examination.

3. Graduates from any approved high school in the state are admitted in the same way.

In the absence of proper certificates the usual examination as for admission to the freshman class of the University, (p. 40) will be required.

ADVANCED STANDING

The following persons will be admitted to advanced standing:

1. Persons who produce from another law school, in good standing, certificates of having satisfactorily pursued courses in law, included in the following schedule, and received credit therein, *provided* that the time spent on such courses is equivalent to the time spent on the same courses in this school. Otherwise, an examination on such courses, given by the instructors in this College, must be satisfactorily passed.

2. Persons who have studied law privately or in an attorney's office, and pass examinations prescribed by the faculty of the College.

3. Members of the bar of this state, who will be admitted to the third year class without examination as candidates for the degree of LL.B.

SPECIAL STUDENTS

Students who do not desire to be candidates for a degree may take one or more courses as special students upon approval of the faculty of the College under regulations to be prescribed for the University (p. 54). Such students will receive credit for work satisfactorily done, and may become

candidates for graduation at any time by meeting the requirements of the College.

METHODS OF INSTRUCTION

The methods of instruction used in this College are based upon the study of cases. Text-books are used to some extent, and lectures are occasionally resorted to, but the study of the case is regarded as the chief means to the attainment of legal knowledge and proficiency.

LIBRARY AND MOOT COURT

The library consists of the leading text-books on all subjects: Supreme and Appellate Court Reports of Illinois; United States Supreme Court Reports; New York, Ohio, Massachusetts, Iowa, Wisconsin, Michigan, and Indiana Reports; American Decisions, American Reports, and American State Reports; the current volumes of the West Company Reporter System, and the leading legal periodicals. Additions of reports and text-books will be made during the coming year.

The Moot Court is held once a week for the purpose of familiarizing the student with legal procedure. It is presided over by Judge Harker, the other officers being elected by the law students from their own body. All second and third year students are required to be present and to perform such duties as may be assigned them.

LEGAL STUDY AND UNIVERSITY WORK

The Council of Administration will, upon application, in proper cases, apply credits earned in the College of Law upon other University courses.

Students matriculating in the College of Law may take any of the following courses in the College of Literature and Arts, subject to the approval of the Dean of the College of Law and of the Dean of the College of Literature and Arts: public law and administration; economics and social science, and history. By special arrangement other work in the College of Literature and Arts may also be taken.

COURSE OF INSTRUCTION

Required for the Degree of LL.B.

FIRST YEAR

1. Contracts (Law 1); Torts (Law 2); Real Property (Law 3); Common Law Pleading (Law 4); Criminal Law (Law 5); Personal Property (Law 6).

2. Contracts (Law 1); Torts (Law 2); Real Property (Law 3); Common Law Pleading (Law 4); Domestic Relations (Law 7).

SECOND YEAR

1. Evidence (Law 8); Sales (Law 9); Real Property (Law 10); Agency (Law 11); Equity (Law 12); Damages (Law 13).

2. Evidence (Law 8); Real Property (Law 10); Equity (Law 12); Bailments and Carriers (Law 14); Bills and Notes (Law 15).

THIRD YEAR

1. Trusts (Law 16); Corporations (Law 17); Wills and Administration (Law 18); Partnership (Law 19); Constitutional Law (Law 22); International Law (Law 23); Practical Conveyancing (Law 25); Moot Court (Law 26).

2. Corporations (Law 17); Equity Pleading (Law 20); Suretyship and Mortgage (Law 21); Constitutional Law (Law 22); International Law (Law 23); Municipal Corporations (Law 24); Practical Conveyancing (Law 25); Moot Court (Law 26).

REQUIREMENTS FOR GRADUATION

The requirements for graduation with the degree of bachelor of laws are seventy-eight semester hours of work. A "semester hour," as here used, means one hour per week of class room work for one-half of a year. The degree will be conferred upon the completion of the course set forth above.

ADMISSION TO THE BAR

Under the rules of the Supreme Court of Illinois, candidates for admission to the bar of this state must have had a high school education or its equivalent, must have completed a three years' course of study in a law school or law office, and must then pass an examination to be given by the State Board of Bar Examiners.

THE COLLEGE OF MEDICINE

(For Faculty of the College of Medicine, see p. 17.)

HISTORY

The College of Medicine, the College of Physicians and Surgeons, is located on the corner of Harrison and Honore Streets, Chicago, in the heart of the medical quarter of the city. It was founded in the year 1882 by a number of representative physicians and surgeons. In 1892 the College had a thorough reorganization, and erected a commodious laboratory building—the first building exclusively for laboratory purposes erected by any medical school in the West. Since that time is has grown with steadiness and rapidity. The attendance in 1895-96 was 235; in 1896-97, 308; in 1897-98, 408; in 1898-99, 514, 35 of the students being women, and in 1899-1900 is 579, 43 being women. It became the Medical Department of the University in April, 1897.

Chicago is already the center of medical study in the United States. Since the winter of 1897-98 it has contained a larger number of medical students than any other city in the western hemisphere. These students are distributed among fourteen medical colleges, of which the College of Physicians and Surgeons is the second, as to the size of its classes, and is not outranked by any in respect to its facilities, or the scope and thoroughness of its curriculum, or in regard to the place it occupies in the esteem of the medical profession.

SESSIONS

After the first of October, 1900, the work of the College will be continuous. The collegiate year will be divided into three terms of four months each, beginning as nearly as pos-

sible the first of October, the first of February, and the first of June. Each term will be of sixteen weeks duration and will offer the same amount of work. Attendance upon two terms, that is eight months, of instruction, will constitute a year's work.

REQUIREMENTS FOR ADMISSION, SESSION OF 1900-1901

First, a certificate of good moral character from two reputable physicians.

Second, a diploma of an accredited high school or academy of the University of Illinois, or of a similarly accredited school of another university, whose entrance requirements are equivalent to the entrance requirements of the University of Illinois.

Or, third, entrance examination covering the following subjects:

1. Algebra.—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of exponents, and the analysis and solution of problems involving these. The subject as given in Wells's Higher Algebra through quadratic equations, or the same work in Wentworth's Algebra or an equivalent.

2. Composition and Rhetoric.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of Rhetoric. The candidate will be required to write two paragraphs of about one hundred and fifty words each to test his ability to use the English language. The subject as presented in Genung's Outlines of Rhetoric, Scott and Denney's English Composition, or an equivalent.

3. English Literature.—(a) Each candidate is expected to have read certain assigned literary masterpieces, and will be subjected to such an examination as will determine whether or not he has done so. The books assigned for the next year are as follows:

Dryden's Palamon and Arcite; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Lowell's Vision of Sir Launfal; Scott's Ivanhoe; Shakspere's Macbeth; Milton's

Paradise Lost, Books I. and II.; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Tennyson's The Princess.

(b) In addition to the above, the candidate will be required to present a brief outline of American Literature. Hawthorne and Lemmon's Outline of American Literature, or an equivalent.

4. LATIN.—Such knowledge of inflections and syntax as is given in any good preparatory Latin book, together with the ability to read simple fables and stories; also four books of Cæsar's Gallic War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

5. GEOMETRY.—Plane Geometry, as given in Wells's or Wentworth's Geometry, or an equivalent.

6. HISTORY.—At least one year in one of the following subjects: (a) The History of England and of the United States; (b) General History; (c) The History of Greece and Rome.

7. PHYSICS.—The elements of physical science as presented in such text-books as Appleton's School Physics, or Avery's Elements of Natural Philosophy, or Carhart and Chute's Elements of Physics, or Gage's Elements of Physics.

The entrance examinations are conducted in writing by a committee outside of the Faculty of the College of Medicine appointed by the President of the University, and are held at the medical college at 10 a. m. on the week day next preceding the opening of each term.

ADVANCED STANDING*

Students who have received the degree of bachelor of arts or bachelor of science, and those who have completed a "medical preparatory course," equivalent to that given by the University of Illinois, and graduates of reputable schools of pharmacy, veterinary science, or dental surgery, whose course extends over two years, may enter the sophomore class and complete their studies upon three years of attendance, provided they fulfill all other requirements for admission and graduation. *Students thus advanced may not complain of any conflict of hours, nor absent themselves from any part of the lower conflicting course;* but they may make

* For Combined Undergraduate and Medical course of six years, leading to the degree of B.S. and M.D., see p. 123.

up deficiencies in the work of the winter session during the spring course in such branches as are represented in that course.

COURSE OF STUDY*

The curriculum required for graduation extends over four years. During the first two years the work is confined to the sciences fundamental to practical medicine. During the freshman year this consists of work in histology, biology, embryology, chemistry, human anatomy, physiology, and materia medica. During the sophomore year the study of physiology, chemistry, and human anatomy is continued, and in addition the student takes up pathology, bacteriology, and therapeutics. With the junior year the study of the practical branches of medicine is begun. The entire subjects of practice of medicine, surgery, and obstetrics are covered in recitation courses. The student also begins clinical and bedside work and receives instruction in medical and surgical specialties. More advanced work along the same lines is continued in the senior year. Practice of medicine, surgery, and obstetrics are gone over again, this time in lecture courses and with greater minuteness of detail and profuseness of illustration. The various special departments of medicine and surgery are presented with like thoroughness, and a large part of the student's time is given to clinical study.

METHOD OF INSTRUCTION

During the first two years the time of the students is about equally divided between laboratory and didactic work. The plan of instruction in the College contemplates the freest use of laboratory teaching. Wherever possible practical laboratory work is made to supplement didactic teaching. Students are taught not only by prepared specimens, but they are required to prepare their own specimens from the original material, and are thus made familiar with technical methods, so that they become able independently to carry a technical investigation through all of its stages. During the junior and senior years the time is about equally divided

* For Combined Undergraduate and Medical course of six years, leading to the degree of B.S. and M.D., see p. 123.

between clinical and didactic work, with, perhaps, a preponderance of clinical instruction in the senior year. This clinical instruction is carried on, as far as possible, with the student at the patient's side. Attendance upon clinics is required in the same way as upon lectures, and the students are graded upon, and given credit for, their work in the clinical courses just as they are for the work in the didactic and laboratory courses. The students of the junior and senior years are divided into classes for dispensary work, and these classes have instruction in rotation in the various departments of practical medicine.

EQUIPMENT

The college building is a six-story structure on the corner of two wide streets, with an open space around it on all sides. It is provided with all modern conveniences. It contains three well-lighted and well-ventilated amphitheaters, the smallest of which seats two hundred students. In these amphitheaters the usual lectures are given. Adjacent to the college building on the west is the laboratory building. The laboratories contained therein are among the largest and most complete possessed by any medical college in the United States. They occupy four floors, three of them 25x100 feet each, and one 25x56 feet. Each will accommodate one hundred and twenty students at a time. They are provided with desks and lockers for students' use, and are well adapted to the work for which they are severally intended. Adjoining the laboratories are preparation rooms for the use of demonstrators and professors. There is a bone room, to which students have free access for the study of osteology. In the department of pathology the collections furnish ample material for the macroscopical as well as the microscopical study of diseased tissues. The store rooms are connected with all the laboratories by means of an elevator. The College has for the use of students 150 modern microscopes of late continental and American patterns, a sufficient number of which are equipped with oil emersion lenses. There are also an ample number of microtomes for students' use, besides micro-

tomes of special construction for particular kinds of work, electric projection apparatus of latest design, and all other apparatus in any way necessary for students' work or for the illustration of lectures.

FREE DISPENSARY

The dispensary occupies part of the first and second floors of the main building. Connected with the reception room are fourteen clinic rooms for the accommodation of the various specialties in medicine and surgery. During the past five years there have been treated in these rooms an average of twenty thousand patients each year.

HOSPITAL FACILITIES

Members of the faculty and other friends of the College purchased, a few years ago, the adjoining building of the Post-Graduate Medical School and converted it into a hospital of 125 beds. It is a large, handsome structure, 50x100 feet, five stories high, of modern construction, and completely furnished. It is connected with the college amphitheater by a corridor and its clinical resources are thus made easily available for the instruction of students. An entire floor of this hospital is reserved as a ward for patients who are maintained by the College for the instruction exclusively of its students. It is designed to increase these hospital resources as necessity indicates. Directly opposite the College is Cook County Hospital, the only free hospital in Chicago. It contains almost a thousand patients, and supplies a quantity and variety of clinical material which no private institution can command. In the amphitheater of the hospital much of the clinical instruction of the College is given. In addition to the foregoing resources members of the faculty are connected with various other hospitals of the city and freely draw upon them for the benefit of students.

REQUIREMENTS FOR GRADUATION

First, a certificate of good moral character by two reputable physicians.

Second, satisfactory deportment during attendance at college.

Third, satisfactory evidence that the candidate is twenty-one years of age.

Fourth, proof that the candidate has attended at least four full courses of instruction in four separate years, the last of which shall have been in this institution.

Fifth, certificate that the candidate has pursued the study of practical anatomy during two years and to the extent of having dissected at least the lateral half of the human body.

Sixth, certificate that the candidate has attended two full courses of dispensary and hospital clinics.

Seventh, payment of all the college fees in full.

LIBRARY

The College has for several years had a reference library of several hundred volumes. This library owes its foundation to the gift to the College of the collection of books of the late Prof. A. Reeves Jackson. It has been added to largely from time to time by contributions from members of the faculty and other friends of the College. Its usefulness has recently been greatly augmented by gifts from the Dean of the Faculty, in consideration of which, and of provision made for its permanent maintenance and growth, it has been named by the faculty the Quine Library. It already contains practically every book of reference required by medical students, and the important medical periodicals. In point of size and completeness it is the second medical library in Chicago, the Newberry Library being the first, and in attendance of readers it is the first. It is in charge of a trained librarian, and is open daily from nine to five for the use of students.

More detailed information concerning the College may be obtained by application to the Registrar of the University, Urbana, Ill., or to the Secretary of the College of Medicine, Dr. William Allen Pusey, 103 State Street, Chicago.

THE SCHOOL OF PHARMACY

(For Faculty of School of Pharmacy, see p. 22.)

HISTORY

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany Mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College, from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a

building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School the Trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The School is situated near the business center of Chicago. In addition to the larger amphitheater, known as "Attfield Hall," which has a seating capacity of three hundred and fifty, the building occupied has a smaller hall especially fitted for lectures and demonstrations in chemistry, and capable of seating one hundred and fifty persons. The chemical and pharmaceutical laboratories, as well as the microscopical laboratory and the dispensing laboratory, are commodious and well appointed.

The courses of instruction, covering two terms of seven months each, extending from October to April, inclusive, afford opportunities for a thorough technical training, such as is necessary for the successful practice of pharmacy. The subjects taught are pharmacy, chemistry, botany, and materia medica.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

REQUIREMENTS FOR ADMISSION

Applicants for admission must be at least sixteen years of age and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this School.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at School, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this School, must pass the examinations, and must not have been absent more than five times during the term from either laboratory exercises or lectures in any department.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

Persons competent to fulfill the general requirements of admission to the University may be granted credit upon the University courses for equivalent work satisfactorily completed at the School of Pharmacy.

Further information is given in the special announcement of this school. Address W. B. Day, Actuary, School of Pharmacy, 465-7 State Street, Chicago, Ill.

HOUSEHOLD ECONOMICS

The University offers a group of courses selected from various departments to form a complete scientific basis for planning, decorating, and managing a home.

The courses are as follows:

ARCHITECTURE

A special course is offered to students in household economics in house-planning and house decoration. See Architecture 27.

BACTERIOLOGY (BOTANY 5)

This course extends through the second semester, ten hours a week. Eight to ten weeks are devoted to a general introduction to the science and the methods of laboratory work, the nature and characteristics of bacteria, their kinds and special effects, the preparation of nutrient media, securing and continuing pure cultures, microscopical preparations, etc. After this each student may select a subject or line of subjects for special study and investigation. These may be of direct interest and importance to the housekeeper, and include, besides general sanitary matters, such topics as fermentation and putrefactive changes in foods and food substances; beneficial and injurious organisms and their effect in bread-making, in milk products, etc.; bacteriological examination of water and of air; the preservation of organic substances; cleansing and fumigating clothing, rooms, apparatus, etc.; and the distribution and elimination of disease germs.

Required: Chemistry 1 and Biology 1.

CHEMISTRY

Two years of chemistry are offered for students of household economics.

Subjects of the first year are: General elementary chemistry. (Chem. 1.) Qualitative analysis. (Chem. 3b.) Elements of organic chemistry. (Chem. 4.)

For the second year several different courses are available. These should be grouped substantially as follows:

Either (1): Quantitative analysis (Chem. 5a), and chemistry of foodstuffs (Chem. 5c). This includes analysis and testing of milk, butter, cereals, meats, etc.

Or, (2): Agricultural chemistry (Chem. 13).

Or, (3): Household chemistry (Chem. 23). This course includes analyses of baking powders, vinegars, syrups, sugars, soaps, etc., etc.

Sanitary analysis of water, air, etc. (Chem. 10) and proximate organic analysis (Chem. 21) afford opportunities for investigation of food supplies in both the raw and prepared state.

ECONOMICS

A series of six or eight lectures will be given, if desired, on certain questions of social economics which have a direct bearing on household economy. These lectures will discuss such topics as the domestic servant problem in its relation to the general labor question; household budgets, and the light they throw on the economics of consumption; the wages of women workers, etc.

PHYSIOLOGY

Work in this course consists of microscopical and chemical study of food and digestion.

Required: Chemistry 1 and Biology 1.

SUMMER TERM

In the summer of 1899 the University held a Summer Term opening on the Monday following commencement and continuing nine weeks. The attendance was 97 men and 51 women, a total of 148. Of these 106 had not attended the University before. Of the 42 old students, 10 were graduates of the University. Fifty counties of Illinois, and seven other states, were represented.

The subjects offered and the students taking the same were as follows: Botany, 51; Chemistry, 15; Physics, 43; Zoölogy, 51; English-American Literature, 24; Rhetoric, 31; Shakspere, 25; Latin, beginners, 29, Cæsar 14, Cicero 6, Virgil 6; Pedagogy, 72; Mathematics, 55.

SUMMER TERM, 1900

The Summer Term of 1900 will open Monday, June 18th, continue six weeks, and close Friday, July 27th. No examinations or other conditions will be placed upon admission. All who can do the work are welcome to get what they can from it. Those who can meet the requirements may matriculate in the University if they desire, and in that event may have credits to apply upon regular University courses when certified, upon examination or otherwise, by the professors in charge. Time may be doubled or even tripled upon any work in which the student is especially interested, by arranging with the professor in charge, and work so multiplied will be equitably credited to matriculants in the University records. The fees will be $10 for the term; if a matriculant in the University, $6. Laboratory fees will be charged to cover the cost of material used.

COURSES OF WORK

Biology (zoölogy and botany), in charge of Deans Burrill and Forbes, Professor Smith, Mr. Holferty, and Mr. McClellan.

Chemistry, in charge of Assistant Professor Grindley.

Physics, in charge of Assistant Professor Sager and Mr. Carpenter.

Pedagogy and psychology, in charge of Professor Dexter and Assistant Professor Brooks.

English language and literature, in charge of Professor Clark and Miss Carson.

Latin, in charge of Professor Barton.

Mathematics and astronomy, in charge of Professor Myers and Mr. Brenke.

Lectures will be presented by the State Superintendent of Public Instruction, and by the Presidents of three of the state normal schools, and by the President and many professors of the University.

The libraries, laboratories, Astronomical Observatory, and gymnasiums of the University will be open to students at the summer term.

For information circular address the Registrar.

SATURDAY CLASSES FOR TEACHERS

In the fall of 1899 classes were formed to meet on Saturday mornings for such teachers as chose to enroll themselves for work. A class was formed for the study of subjects for which there were five, or more, applicants. The subjects which were called for during the present year are algebra, art and design, English literature, German, and Latin. Each person is charged a fee of $5, and no one is permitted to take more than one subject except on the payment of an extra fee. In no case may a student carry more than two subjects. It is hoped that the demand for this work will increase.

GENERAL DESCRIPTION OF COURSES

Following the description of each course of instruction will be found the necessary requirements, if any, for admission to that particular course. Careful attention must be given to these requirements and to the sequence of studies thus indicated. For instance, under Architecture 4, for students of the College of Engineering, page 179, there are required "Physics 1 and 3," and "Architecture 2 and 3." Turning now to these subjects, it is found that physics 1 and 3 are the major course of one year, architecture 2 is wood construction, and architecture 3 is metal construction. All these subjects must be satisfactorily passed before admission may be had to the class in architecture 4.

In case a course not required for graduation is selected by less than five students, the right to withdraw the same for the semester is reserved.

Graduate courses of instruction are described under the various subjects, as a rule after the undergraduate courses. They are numbered upward from 100. Other courses may often be arranged by the professors in charge to meet the special requirements of students. The subjects in which graduate courses are announced for 1900-1901 are as follows:

Agriculture, architecture, botany, chemistry, civil engineering, Danish language, economics, electrical engineering, French, geology, Greek, history, mechanical engineering, municipal and sanitary engineering, pedagogy, philosophy, psychology, theoretical and applied mechanics, zoölogy.

Credit is reckoned in semester "hours," or simply "hours." An "hour" is either one class period a week for one semester, each class period presupposing two hours' preparation by the student, or the equivalent in laboratory, shop, or drawing room.

The semester, the days, and the class period or periods during which each course is given, and the number of "hours" per semester for which the course counts, are shown after each course, as follows: The semester is indicated by the Roman numerals I, II; the days, by the initial letters of the days of the week; the class period or periods (of which there are nine each day, numbered consecutively from one to nine), by Arabic figures; and the "hours" or amount of credit, by Arabic figures in parentheses. For example, after the description of Anthropology 1 (p. 178) occur the abbreviations I.; M., W., F.; 1; (3). These are to be read first semester, Monday, Wednesday, and Friday, first period, three "hours."

AGRONOMY

1. DRAINAGE, FENCES, AND FARM BUILDINGS.—Location of drains, their construction, efficiency, cost, and durability, including leveling, digging, laying, filling, and subsequent care; also of sewers for disposal of the waste water of buildings and the sewage from kitchen and toilet. The different kinds of fences, their cost, construction, efficiency, and durability, including experience in setting anchor posts. The arrangement, design, and cost of farm buildings. *I., first half; II., second half; daily; 3, 4; (2½).* Mr. CRANE.

1a. FARM MACHINERY.—The tools and machinery of the farm—hoes, spades, plows, harrows, cultivators, rollers, planters, cutters, grinders, mowers, rakes, binders, wagons, windmills, pumps, and engines—their design, construction, draft, efficiency, durability, and care. The laboratory work consists in setting up and testing machinery, in grinding, thread cutting, and the elements of machine repairing. *I., second half; II., first half; daily; 3, 4; (2½).* Mr. CRANE.

1b. SPECIAL WORK.—Students may arrange for special work in any of the foregoing lines covering drainage or farm machinery, either in the second semester or the summer.

2. FARM CROPS.—Conditions of germination and growth and the circumstances modifying these conditions. Peculiarities of the different agricultural plants in respect to structure, habits, and requirements for successful growth. Their varieties and susceptibility to improvement; selection and breeding of corn and other

farm crops, and the varieties best adapted to Illinois conditions; weeds and weed seeds, their identification and methods of destruction; fungous diseases such as smut of wheat and oats; blight and rot of potatoes and methods of prevention; insects injurious to farm crops and how to combat them.

The above will be supplemented by laboratory and field work consisting of a study of vitality of seeds and their preservation; shrinkage of grain; root development of corn, clover, etc.; amount of seed of different crops to plant; methods of seeding clover, timothy and other forage crops; judging of corn, etc. *I. and II.; daily; 1, 2; (5).* Mr. SHAMEL.

2a. SPECIAL CROPS.—Their history and distribution over the earth, with the particular study of those that flourish in the higher latitudes as to methods of culture, systems of production, consumption, and residues. In connection with this study is practical field experience in such work as testing varieties of potatoes, amount of seed, and methods of planting; varieties of corn, thickness and depth of planting; injury to roots by cultivation, effect of removing tassels, and the selection and breeding of corn and other crops; the amount of moisture required for different crops and different methods of producing oats and wheat, together with methods of seeding, and such other practices as apply directly to Illinois methods in this connection. Students have excellent opportunities to study the work of the Experiment Station. *II. or summer; daily; arrange time; (5).* Mr. SHAMEL.

Required: Agronomy 2.

3. SOIL PHYSICS AND MANAGEMENT.—This course is designed to prepare the student better to understand the effects of the different methods of treatment of soils and the influence of these methods upon moisture, texture, aeration, fertility, and production. It comprises a study of the origin of soils, of the various methods of soil formation, of the wasting of soils by washing, and of their classification and composition; also soil moisture and means for conserving it, soil texture as affecting capillarity, osmosis, and diffusion, and as affected by plowing, harrowing, cultivating, rolling, and cropping; fall or spring plowing and drainage as affecting moisture, temperatures, and root development.

The work of the class room is supplemented by laboratory work, comprising the determination of such questions as specific gravity, relative gravity, water holding capacity and capillary power of various soils, also the study of the physical effects of different systems

of rotation and of continuous cropping with various crops, and the mechanical analysis of soils. *I. and II.; daily; 3 and 4; (5).* Mr. Ward.

3a. Special Problems in Soils.—This work is intended for students wishing to specialize further along the lines of soil study, or for those wishing to do special work during the summer vacation, and will include the determination by electrical methods of the temperature, moisture, and soluble salt content of various soils under actual field conditions; effect of different depths of plowing, cultivation, and rolling on soil conditions; of the nature of the so-called "alkali," "barren" or "dead dog," and other peculiar soils of Illinois; of the effect of different kinds of fertilizers, and of the effects of different methods of preparing seed beds. *II. or summer; daily; arrange time; (5).* Mr. Ward.

4. Soil Bacteriology.—A study of the morphology and activities of the bacteria which are connected with the elaboration of plant food in the soil or which induce changes of vital importance to agriculture, with regard to the effects of cropping and tillage upon these organisms, and with special reference to the study of those forms which are concerned with the formation of nitrates and nitrites in the soil and with the accumulation of nitrogen by luguminous crops. *II.; daily; 6, 7,* and *8; (5).* Mr. Ward.

Required: Regular admission; Botany 5; Chemistry 3b and 4.

5. Fertilizers, Rotations, and Fertility.—The influence of fertility, natural or supplied, upon the yield of various crops; the effect of different crops upon the soil and upon succeeding crops; different rotations and the ultimate effect of different systems of farming upon the productive capacity of soils.

The above will be supplemented by a laboratory study of manures, their composition and value; of soils cropped continuously with different crops and with a series of crops; of the fertility of soils from different sections of Illinois and at different depths. *II.; daily; 4; (5).* Professor Holden.

Required: Regular admission.

6. Farm Management.—Extensive and intensive methods of farming; handling of large and small farms; economic bestowal of labor and the profitable use of machinery; methods and systems of plowing, the advantages and disadvantages of each; different methods of raising and harvesting crops and the comparative efficiency and cost of each; the place of special crops; of live stock, fencing, and the rotation of crops in the economy of the farm; disposal of the crops

by marketing and by home consumption. Systems of farming now in use by the best farmers in the state will receive special attention. This work is designed to fit men to superintend or manage successfully farms either for themselves or for others. *II.; daily; 5; (5).* Professor HOLDEN.

Required: Regular admission; two years of University work or its equivalent; Agronomy 5.

7. HISTORY OF AGRICULTURE.—Its development and practice with particular regard to the agriculture of those nations which have contributed most to agricultural progress, including a sketch of the earliest agricultural practices as illustrated by the agriculture of the Egyptians, Jews, Chinese, and other ancient peoples; followed by a study of the development of Roman agriculture and its influences upon the practices in other nations; a consideration of the beginnings and systems of British agriculture with regard to their influence upon social conditions; and, finally, a comparison of the characteristic features of American agriculture with those of the existing systems of other countries. *I., first half; daily; 2; (2½).* Mr. WARD.

8. COMPARATIVE AGRICULTURE.—Influence of locality, climate, soil, race, customs, laws, religion, etc., upon the agriculture of a country, and incidentally upon its people. One crop only, and its effect, as rice; Indian corn in American agriculture and affairs. Varying conditions under which the same crop may be produced, as wheat. Statistical agriculture. Influence of machinery and of land titles, whether resting in the government, in landlord, or in occupant. Relation of agriculture to other industries and to the body politic. Lectures. *II.; F.; 2; (1).* Professor DAVENPORT.

Required: Regular admission; two years of University work.

9. AGRICULTURAL EXPERIMENTATION.—A systematic study of the work of experiment stations and experimenters in this and other countries, together with a critical study of correct principles and methods of experimentation, designed for such students as desire to fit themselves for work in original investigation in experiment stations or elsewhere. *II.; daily; 4; (5).* Professor HOLDEN.

Required: Regular admission; two years' work in Agriculture.

10. INVESTIGATION AND THESIS.—This course varies in the subject matter of study according to the department in which theses are written. The work is under the direction of the head of the department in which the work is done. *I. and II.; arrange time; (5 to 10 in all).*

ANIMAL HUSBANDRY

1. Animal Types.—A critical study of the types of animals best suited to the production of meat, milk, and wool, and to the requirements of labor and ordinary driving, together with the characteristics of the principal breeds and their recognition at sight. Each student will make a careful study of the history and characteristics of a single breed and will be given practice in tracing lines of breeding in pedigree records.

Practice in judging three days per week, supplemented by lectures and reference readings, designed for students not specializing in animal husbandry. *II., second half; daily; 4 and 5; (2½).* Mr. Kennedy.

2. Live Stock Management.—The housing, feed, and management of flocks and herds, and the care and surroundings of work horses and ordinary drivers. *II., first half; daily; 3; (2½).* Mr. Kennedy.

3. Sheep, Mutton, and Wool.—Exhaustive study of mutton cuts and of grades of wool and their uses in the manufactures, together with the history, development, and character of the several breeds, the location of the principal flocks, the methods of the most successful flock masters, and the economic production of mutton and wool for the markets of the world. Lectures and assigned readings, with practice in judging, three days per week. *I., first half; daily; 4 and 5; (2½).* Mr. Kennedy.

4. Beef, Cattle, and Swine.—The cuts of meat, their comparative quality and cost, with the economic production of beef and pork and the by-products of the slaughter-house; followed by the history, development and characteristics of the beef breeds and of swine, together with the location of the great breeding herds and the methods of the most successful stockmen. Attention is given to the non-specialized and dairy breeds as beef producers. Practice in judging three days per week, supplemented by lectures and assigned readings. *I., first half; daily; 6 and 7; (2½).* Mr. Kennedy.

5. Dairy Cattle and Other Breeds.—The same critical study of dairy cattle and dairy breeds as is outlined for beef, followed by a study of non-specialized breeds. Practice in judging, three days per week, supplemented by lectures and assigned readings. *I., second half; daily; 6 and 7; (2½).* Mr. Kennedy.

6. Draft and Coach Horses.—The horse market and its demands, followed by a critical study of draft and coach horses, and

of methods of producing the market horse in heavy and medium classes. Lectures, reference readings, and practice in judging, including examination for soundness. *II., first half; daily; 6 and 7; (2½).* Mr. KENNEDY.

7. LIGHT HORSES.—Hackneys, Morgans, thoroughbreds, trotters, saddlers, and ponies, their characteristics and history, and the classes of light horses demanded by market conditions, together with the training of drivers and saddlers. Lectures, reference readings, and judging, including examination for soundness. *II., second half; daily; 6 and 7; (2½).* Professor DAVENPORT and Mr. KENNEDY.

8. STOCK FEEDING.—The functional activities of the animal body and the end products of their metabolism. Foods are considered, first, chemically as affording materials for the construction of the body tissues or of animal products, as meat, milk, wool, etc.; second, dynamically as supplying the potential energy for the body processes and for external labor; third, as to the fertilizing value of their residues. There is involved a study from the breeder's standpoint of the perfect development of the animal after birth, and also of the phenomena of animal nutrition from the economic standpoint, in which animal activity is considered as an agent for transformation of energy, and the manufacture of animal products as a source of profit. *II.; daily; 4; (5).* Professor DAVENPORT.

Required: Regular admission; two years of Science; including Chemistry 1, 3, and 4.

9. BREEDING.—The principles and phenomena of evolution as applicable to the improvement of animals and plants; variation, its nature, extent, importance, and causes; correlated variation, the effects of use and disuse, and the influence of environment; the nature and operations of heredity, particularly as to inheritance of acquired characters; instinct and intelligence; panmixia, and disappearance of characters; latent characters and reversion; inbreeding and outbreeding, hybridism, crossing, and grading—all as bearing upon the efficiency of selection and care. The aim is to bring every known principle of reproduction to the assistance of the breeders' art. *II.; daily; 3; (5).* Professor DAVENPORT.

Required: Regular admission; two years of University work, including one year of Botany or Zoölogy.

10. INVESTIGATION AND THESIS.—Upon lines to be arranged with instructor for one or both semesters, according to nature of the subject. *(5) to (10).* Professor DAVENPORT and Mr. KENNEDY.

ANTHROPOLOGY

1. General Anthropology.—This course begins with a study of the physical and psychical elements of ethnography. Theories as to the origin of man are discussed, and the various races of mankind are distinguished and described. Special attention is given to the historical and comparative study of customs, ceremonies, rights, beliefs, and folklore of primitive peoples, with reference to the common characteristics and fundamental instincts of mankind, and to the origin and growth of existing customs and social institutions. *I.; M., W., F.; 1; (3).* Professor Daniels.

Required: A major or minor course in economics, geology, psychology, or zoölogy.

ARCHITECTURE

2. Wood Construction.—Formulæ and data for computing dimensions and strength of columns, beams, girders, etc., of wood or metal, are given and applied in the solution of examples. Wood and its uses in construction and decoration, seasoning, shrinkage, defects, and modes of protection from decay. Construction and design of wooden floors, walls, ceilings, and roofs, and joinery, doors, windows, bays, inside finish, cornices, wainscoting, stairs, etc. *Kidder's Building Construction and Superintendence; Part II.; Jones's Logarithmic Tables. I.; M., W.; 6, 7, and 8; (3).* Assistant Professor McLane.

Required: General Engineering Drawing 1, 2.

3. Masonry and Metal Construction.—Foundations of stone, brick, concrete, and piles; materials employed in stone masonry, their uses, defects, qualities, and modes of preparation. Kinds of masonry and external finish. Tools for stone cutting and their use. Preparation of working drawings, with application to the arch, vault, and dome. Brick masonry, its materials, and bonds. Manufacture and refining of cast iron, wrought iron, and steel, with processes of pattern-making, molding, casting, refining, rolling, etc., and standard dimensions or sections. Special properties and value of metal in a structure, designing a line of columns in mercantile building, and of beams, girders, and footings, together with the study of joints and connections. *Kidder's Building Construction and Superintendence, Part I. II.; Tu., F.; 6, 7, and 8; (3).* Assistant Professor McLane.

Required: General Engineering Drawing 1, 2.

4. Sanitary Construction.—Recitations and lectures, designs for special problems. Study of plumbing, trap ventilation, removal of wastes, construction of water closets, drains, and systems of water supply; sewage disposal. Water supply and fixtures in dwellings. *Gerhard's Sanitary Engineering; Lectures on Sewage Disposal. I.; Tu., Th., F.; 6; (3).* Assistant Professor McLane.

Required: Physics 1, 3; Arch. 2, 3.

5. Graphic Statics and Roofs.—Elements of graphic statics and applications in designing trussed roofs. Forces, equilibrium, reactions, moments, bending moments, and shears on beams, center of gravity, moment of inertia and kern of cross sections. Construction of wooden and of metallic roofs, mode of computing loads on roof trusses, obtaining end reactions, drawing strain diagrams, and determining sectional dimensions of members, with the designing of joint connections. *Ricker's Trussed Roofs; Ricker's Elementary Graphic Statics. II.; M., W., F.; Section A, 1, Section B, 2; also 3 hours' drawing a week; (3).* Assistant Professor McLane.

Required: Math. 2, 4, 6; Theoretical and Applied Mechanics 1 and 2 or 4 and 5.

6. History of Architecture.—Continues through the year and is taken with architecture 7 and 11. Commencing with Egyptian and ending with modern styles, a careful study is made of the more important styles, examining historical conditions, local and inherited influences, structural materials and system, special ornaments, purposes and designs of the buildings, with the most important typical examples of each style. Especial attention given to ideas useful or suggestive in American work, and to tracing gradual evolution of architectural forms. One recitation and two illustrated lectures a week. References made to Fergusson, Lubke, Durm, Reber, Gailhabaud, etc. *Hamlin's History of Architecture; Van Dyke's History of Painting; Marquand's History of Sculpture. I.; M., Tu., W.; 4; (3). II.; M., Tu., W.; 3; (3).* Professor Ricker.

Required: Architecture 4.

7. Details of Styles.—Exercises in drawing at large scale the most important details of the Grecian, Roman, Early Christian, Byzantine, Mohammedan, Romanesque, Gothic, and Renaissance styles. Taken with Architecture 6. *Notes and Sketches. I.; Th., except last in the month; 1, 2, 3, and 4; (1). II.; W.; 6, 7, and 8; (1).* Assistant Professor McLane.

Required: Architecture 2, 3, 8.

8. The Orders of Architecture.—A study of the Five Orders

of Architecture, and architectural Shades and Shadows. A careful study of the proportions and details of the Orders is first made with lectures, recitations, blackboard sketches from memory, and problems requiring the use of the Orders. *Ware's Five Orders; Lectures on Shades and Shadows. I.; Tu., 4, 6, 7, and 8; Th., 6, 7, and 8; (3).* Assistant Professor TEMPLE.

Required: Gen. Eng'g Drawing 1, 2; Architecture 20 or 21.

9. MONTHLY PROBLEMS.—Preliminary instruction in rendering.—An entire day in each month during the second and third years is devoted to a problem in design, requiring the use of the Orders. Program is made known at beginning of the exercise, and sketches must be completed and rendered during the same day. Credit is given for this study only after the completion of each year. *I. and II., the last Th. in each month, all day; (½ for each semester).* Assistant Professor TEMPLE.

Required: General Engineering Drawing 1, 2.

10. WORKING DRAWINGS.—Conventional methods for representing the different parts of buildings in general and in detail, conventional colors and sectioning; systems of lettering and figuring drawings; working drawings; tracing; drawing for copying. *II.; Tu.; 6, 7, and 8; (1).* Associate Professor WHITE.

Required: Architecture 2 and 3.

11. ARCHITECTURAL SEMINARY.—Reports and discussions of original investigations of assigned topics in History of Architecture; reviews of books, abstracts of current technical journals, and other publications. Taken with Arch. 6 and 7. *I.; F.; 4. II.; F.; 3; (1).* Professor RICKER.

12. SUPERINTENDENCE, ESTIMATES, AND SPECIFICATIONS.—This study comprises several specialties not otherwise provided for, so far as they can be taught in a professional school. The subjects treated include the duties of a superintendent, his relations to architect, owner, and contractor, the method of supervising work, systems of keeping building accounts, the usual methods of measurement of materials and work, arrangement of computations in proper and convenient order, and approximate prices of material and labor, which vary in different localities. The methods of estimating by squaring, cubing, units, and quantities are each employed and illustrated by problems. A study is made of the general and special clauses of specifications and of their arrangement, as well as of methods of classifying material to facilitate writing specifications. Practice is obtained by writing several sets. *Clarke's Building*

Superintendence; Lectures on Building Law; Hodgson's Estimating; Bower's Specifications. I.; Tu., W., 5; Th., 4 and 5; (3). Associate Professor WHITE.

Required: Architecture 4.

13. HEATING AND VENTILATION.—Scientific theory and practice of warming and ventilating buildings is the object of this study. Commencing with fuels and production of heat, then passing to flow of gases through ajutages and pipes, applying these data to calculation of dimensions of air ducts and chimneys. Different systems of heating by furnaces, hot water, steam, etc., are next examined, with details of each. Sources of impurity in the air and requirements of good ventilation are then considered, with the different methods of ventilation by aspiration, by fans, etc., ending with the study of fans of different types. Numerous problems are given, and heating plants designed. *Carpenter's Heating and Ventilating Buildings; Ricker's Notes on Heating and Ventilation. I.; M., F., 4 and 5; Tu., W., 4; (4).* Associate Professor WHITE.

Required: Architecture 4, 15; Physics 1, 3.

14. ARCHITECTURAL PERSPECTIVE.—Theory of perspective is taught with labor-saving methods of abbreviating work, and designing in perspective is made a special aim, being very useful to a draftsman in preparing sketches for clients. Problems in angular, parallel, vertical, and curvilinear perspective, as well as in perspective shades and shadows, are solved, requiring original work as far as possible, so as thoroughly to prepare the student for any kind of work in perspective, instead of restricting him to the study and use of a single system. *Ware's Modern Perspective. II.; Tu., 6, 7, and 8; Th., 3, 6, 7, and 8; (3).* Assistant Professor TEMPLE and Professor WELLS.

Required: General Engineering Drawing 1, 2; Architecture 2, 3, 8, 20 or 21.

15. REQUIREMENTS AND PLANNING OF BUILDINGS.—Lectures are fully illustrated by plans sketched on the blackboard, which must be embodied in students' notes. Numerous problems in planning are given. *II.; M., W.; 3 and 4; Th., except last in month; 1, 2, 3, 4, and 5; (3).* Associate Professor WHITE.

Required: General Engineering Drawing 1, 2; Architecture 2.

16. RESIDENCE DESIGN.—Practice in design, and study of the requirements for dwellings. The work is limited to residences, since this class of buildings is likely to afford the graduate his first opportunity for independent original work. *Osborne's Notes on House*

Planning. Lectures and blackboard spetches to be copied in students' notes. *II.; Tu.; 3 and 4; F.; 4 and 5; (2).* Associate Professor WHITE.

Required: Architecture 4, 8.

17. ARCHITECTURAL DESIGNING.—Elementary architectural forms are first traced and sketched from memory; simple problems in design are then solved by sketch plans, elevations and sections, rendered in shade or color as required. The object is to obtain as much practice in original design as possible, and to form a collection of suggestive tracings and sketches. *I.; M., W., F.; 1, 2, and 3; (3).* Assistant Professor TEMPLE.

Required: Architecture 6, 7, 8, 9, 11, 20 or 21.

18. ARCHITECTURAL COMPOSITION.—A careful study is made of the laws of architectural design and of the results of experience embodied in the text-book, with numerous references to other authors. Commences with general principles, passing to an examination of proportions employed in most important styles, arrangement of plan, external design in general and detail, ceilings, and interiors, arrangement of corridors, stairways, and entrances, of internal courts, and of halls for large assemblages. Frequent problems in design afford practical applications of the principles. *Ricker's Translation of Architektonische Composition* (Handbuch der Architektur). *II.; M., Tu., W., Th.; 4 and 5; (4).* Professor RICKER.

Required: Architecture 6, 7, 11, 17, 20 or 21.

19. ARCHITECTURAL ENGINEERING.—This continues the study of graphic statics, commenced in "Graphic Statics and Roofs," with applications to metallic roofs of wide span, roof trusses of curved or unusual form, and those supported by abutments and jointed. Spherical and conical trussed domes. Effect of moving loads on girders, the graphical analysis of the arch, vault, and dome, and of the Gothic system of vault and buttress. Construction and details of steel skeleton buildings. Practical applications are made to a series of problems in design for specified cases. *Ricker's Notes on Advanced Graphics; Freitag's Architectural Engineering; Ricker's Translation of Wittman's Arch and Vault.* References to the works of Planat, Landsberg, DuBois, Clarke, Ott, Levy, Muller-Breslau, etc., on Graphic Statics. *I.; Tu., W., Th.; 7; (3).* Associate Professor WHITE.

Required: Math. 2, 4, 6, 7, 9; Theoretical and Applied Mechanics 1 and 2; Architecture 2, 3, 4, 5.

20. Prescribed.

Any courses offered in Art and Design amounting to three semester hours. *I. and II.; daily; (3).* Professor Frederick.

21. Optional.

Any advanced courses offered in Art and Design. *I. and II.; daily;* Professor Frederick.

Required: Architecture 20.

The art and design courses offered as Architecture 20 and 21 are varied to meet the special needs of students of architecture.

22. Renaissance Design.—A prescribed series of tracings of important details is made, and problems in design are worked out as fully as time permits. *I.; M., W., F.; 6, 7, and 8; (3).* Assistant Professor Temple.

Required: Architecture 17, 18.

22b. Renaissance Design.—More advanced design of the same character as 22. This may be taken instead of Architecture 23 or 24. *I.; Tu., Th.; 1, 2, and 3; (2).* Assistant Professor Temple.

Required: Architecture 17, 18, 22.

23. Gothic Design.—*I.; M., W. or Tu., F., 2 and 3; Th., 2; (2).*

24. Romanesque Design.—*I.; M., W. or Tu., F., 2 and 3; Th., 2; (2).*

In each of these courses, 23 and 24, a prescribed series of tracings of important details is made, and problems in construction and design are worked out as fully as time permits. The same recitations and lectures will be taken together for both courses. The work in Architecture 22b will be accepted in lieu of either of the above courses. *Ricker's Translation of "Redtenbacher's Leitfaden."* Professor Ricker and Associate Professor White.

Required: Architecture 6, 7, 11, 14, 18, 20 or 21.

25. Design of Ornament.—The study of historical ornament with exercises in designing architectural ornament to decorate the structural forms usually found in practice. These designs will be charcoal or crayon sketches, drawings rendered in shade or color, or finished drawings. They will be made on as large a scale as possible, usually full size. *Lectures. Meyer's Hand-book of Ornament. II.; M., Tu., W.; 3, 4, and 5; (3).* Assistant Professor Temple.

Required: Architecture 6, 7, 11, 17, 18, 20.

26. Vacation Sketches.—At the beginning of the third and fourth years, each student is expected to present a suitable number of vacation sketches for approval by Assistant Professor Temple.

27. Domestic Architecture. (For a class of not less than six students in Household Economics).—The elements of the planning, sanitation, decoration, and furnishing of dwellings.

One lecture weekly on planning and arrangement, with exercises in making skeleton plans, by Associate Professor White.

One lecture weekly on water supply and fixtures, sanitary fixtures and plumbing, heating, and ventilation, by Assistant Professor McLane.

One lecture weekly on decoration and furnishing by Professor Ricker.

A considerable amount of additional reading will be required. *II.; Arrange time; 2, 3 or 4; (3).*

28. Mural Decoration.—Includes the study and analysis of some of the best examples of modern decorated interiors; the appropriate use of various materials; the rendering of scale drawings in color, with especial reference to the esthetic effect produced by various harmonies of color. *I., II.; arrange time; (2).* Professor Wells.

29. Short History of Architecture.—(Elective for students in College of Literature and Arts). A careful study of the important historical styles of architecture, their origins, systems of construction, elementary forms, decoration by sculpture and painting, chief kinds of buildings, and a series of selected examples, illustrated by lantern slides. *Lectures with reading of Hamlin's History of Architecture. I.; any two days; 1 or 5; (2).* Professor Ricker.

COURSES FOR GRADUATES

Primary

101. Construction of Extensive Wooden Buildings.
102. Recent Uses of Stone, Brick, and Terra Cotta in Architecture.
103. Metallic Skeleton Buildings.
104. Fire-resisting and Fire-proof Buildings.
105. Sanitation of Public and Semi-public Buildings.
106. Researches on the Evolution of Architectural Styles.
107. Higher Applications of Graphic Statics.
108. Heating and Ventilation of Large Buildings.
109. Higher Studies in Architectural Design.
110. Researches and Experiments in Applied Esthetics.

111. Translation of an approved Technical Architectural Work from the French or German.

112. Indexing and Classification of Periodicals, Books, Data, and Technical Information for Architects and Engineers.

Secondary

113. Stereotomy Applied to American Problems.

114. Examinations of Heating and Ventilation of Buildings.

115. Photography for Architects.

116. Methods of Reproducing Drawings, Specifications, etc., for Architects.

117. Higher Problems and Methods in Perspective.

118. Practice in Estimates, Specifications, etc., for Large Buildings.

119. Higher Industrial Design.

120. Advanced Water-color Painting.

121. Study of Office Methods and Arrangements.

122. Any *primary* offered in the College of Engineering.

123. Electric Lighting and Wiring for Buildings.

ART AND DESIGN

1. FREE-HAND DRAWING.—Lectures on free-hand perspective illustrated by drawing from geometric solids. Principles applied by drawing in outline and in values common objects, as books, vases, chairs, etc.; casts of ornament; casts of details of the human figure and animal forms; interiors and exteriors of buildings; plants and flowers from nature. Exercises in design and lettering. *I.; daily; section A, 1 and 2, section B, 3 and 4, section C, 6 and 7; (3).* Mr. LAKE.

2. CHIAROSCURO.—Study of the principles of light and shade, and practice in expressing color values, textures, etc., in charcoal, crayon, and chalk, drawings of still life. Sketching from life. Exercises in composition and design. *Cross's Light and Shade. II.; daily; section A, 1 and 2, section B, 3 and 4, section C, 6 and 7; (3).* Mr. LAKE.

Required: Art and Design 1.

3. CAST DRAWING.—A course offered students who enter the department with a knowledge of perspective and chiaroscuro (courses 1 and 2), but without sufficient skill to enter advanced courses. Outline and shaded drawings from the antique and from

casts of ornament. Sketching from life. Exercises in design. *I.; daily; 3 and 4; (3).* Professor Frederick.

4. Elementary Water-Color Painting.—Study of still-life and casts in monochrome and color. Students sufficiently advanced will be admitted to the out-door class, course 5, in May and June. *II.; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (3).* Mr. Lake.

Required: Art and Design 1.

5. Advanced Water-Color Painting.—Still-life, fruit and flowers. Landscape sketching from nature. Pastels may be used in place of water-colors if desired. *II.; section A, M., W., F., 3 and 4; section B, M., W., F., 6 and 7; section C, Tu., Th., S., 3 and 4; (2).* Professor Frederick.

Required: Art and Design 4.

6. Elementary Oil Painting.—Still-life in monochrome. Still-life, fruit and flowers in color. Landscape sketching from nature. *II.; section A, M., W., F., 3 and 4; section B, M., W., F., 6 and 7; section C, Tu., Th., S., 3 and 4; (2).* Professor Frederick.

Required: Art and Design 1 and 2 or 4.

7. Advanced Oil Painting.—Advanced work along same lines as course 6. A special study of landscape painting may be made if desired. *II.; section A, Tu., Th., S., 3 and 4; section B, M., W., F., 6 and 7 (2).* Professor Frederick.

Required: Art and Design 6.

8. Modeling.—Details of human figure; copy of ornament; ornament from photograph; original designs for iron and terra-cotta; sketching from life. Casting in waste, draw, and piece molds. *Frederick's Plaster Casts and How They Are Made. I.; section A, Tu., Th., S., 3 and 4; section B, M., W., F., 6 and 7; (2).* Professor Frederick.

Required: Art and Design 1 or 3.

9. Advanced Modeling.—Bas-reliefs from antique figure; b st from antique; anatomical rendering of an antique figure; sketching from life; copy of statuette; original design introducing figure; casting in gelatine and sulphur molds. *I.; section A, Tu., Th., S., 3 and 4; section B, M., W., F., 6 and 7; (2).* Professor Frederick.

Required: Art and Design 8.

10a. Pen Rendering.—Architectural rendering; birds, shells, flowers, etc.; drawings made with a view to their reproduction. *I.; S.; 3, 4 and 5; (1).* Professor Frederick.

Required: Art and Design 1 or 3.

10b. DESIGN.—Book illustration; decorative lettering and design. *I.; arrange hours; (1).* Professor FREDERICK.

Required: Art and Design 10a.

11. PORTRAITURE.—Study of the head from life in charcoal and oil. *I. and II.; daily; 6 and 7; (3).* Professor WELLS.

Required: Art and Design 1, 2 or 3, 6.

12. INDUSTRIAL DESIGN.—Study of the relation of design to manufacture. *I. and II.; section A, M., W., F., 3 and 4; section B, M. W., F., 6 and 7; section C, Tu., Th., S., 3 and 4; (2).* Professor FREDERICK.

Required: Art and Design 1, 2 or 3, 4, 8, 10a.

13. FIGURE DRAWING AND COMPOSITION.—Study of the human figure and its use in illustration and decoration. *I. and II.; daily; 6 and 7; (3).* Professor WELLS.

Required: Art and Design 1, 2, 3, 4, 6, 7, 8, 11.

14. PERSPECTIVE.—A series of problems worked mechanically, illustrating the principles of perspective. *I.; Tu.; 5; (1).* Professor FREDERICK.

Required: Art and Design 1.

15. HISTORIC ORNAMENT.—Lectures upon the historic styles of ornament, with practice in drawing examples of each style. *I.; Th.; 5; (1).* Professor FREDERICK.

16. COLOR.—Lectures upon the chemistry of pigments with practice in carrying out a "theory of color." *II.; Tu.; 5; (1).* Professor FREDERICK.

17. THE GRAPHIC ARTS.—Illustrated lectures upon the history and present practice of the graphic arts. *I.; arrange time.* Professor FREDERICK.

18. ARTISTIC ANATOMY.—Practice in drawing the construction of the human figure from plates, casts, and skeleton. (The practical application of this is made in courses 3, 8, 9, 11, and 13.) *II.; W.; 5; (1).* Mr. LAKE.

19. HISTORY AND CRITICISM OF PAINTING.—Illustrated lectures upon the history and criticism of painting. *I. and II.; Th.; 9; (1).* Professor WELLS.

Courses 10b, 14, 15, 16, 17, 18, 19 require two hours of reading or drawing each week in addition to the hour of studio work.

ASTRONOMY

4. General Astronomy.—Minor course. The course aims to supply a general knowledge of the facts of astronomy, a clear conception of underlying principles, and some acquaintance with the methods of arriving at these facts. Studies are made in the location of constellations and stars. In this course, practical questions are considered, though not made matters of chief importance, the literary and purely scientific features of the science being assigned chief prominence. *Young's Elements of Astronomy,* also *Young's General Astronomy. II.; daily; section A, 4; section B, 6; (5).* Professor Myers and Mr. Brenke.

Required: Mathematics 4.

5. General Astronomy and Cosmogony.—This is a continuation of course 4, and together with 4 it constitutes a line of study for students who wish to pursue astronomy as a major subject. In the latter part of this course the evidence both for and against the Nebular Theory is reviewed. The rôle of the tides in cosmogonic development receives special consideration, and the present view of the origin and cosmic history of the earth-moon system, together with the testimony of astronomy relating to it, are recapitulated to the epoch where astronomy yields to geology. A summarized statement of the results of the researches of Darwin and of Lord Kelvin is included. *I.; M., W., F.; 6; (3).* Professor Myers and Mr. Brenke.

Required: An entrance credit in astronomy.

6. Practical Astronomy.—This course, which is offered both for engineers and special astronomical students, is intended to give the student training in the use of instruments of precision. As a subordinate matter, he is introduced to instruments of a higher grade than those employed in ordinary surveying. A second purpose of the course is to train the student in the art of computing. Model forms of record and reduction for problems are set before him, and the advantage of compact and orderly arrangement of all work is strenuously insisted upon. As a concrete outcome of the above training, the student should acquire the ability to determine latitude, time, and azimuth with such instruments as are used in the ordinary practice of civil engineering. An essential part of the work is the theory of astronomical instruments. *Campbell's Practical Astron-*

omy. I.; Tu., Th.; 1 and 2; (2). Professor MYERS and Mr. BRENKE.

Required: Astronomy 4.

7. THEORY OF ORBITS AND SPECIAL PERTURBATIONS.—This course embraces the following subjects: The formation and integration of the differential equations of motion of a system of bodies and the derivation of the laws of undisturbed elliptic, parabolic, and hyperbolic motion. An investigation of the various formulæ and methods for finding the special perturbations of a heavenly body constitutes an essential part of this course. The methods of Encke, Hansen, and of Variation of Parameters, are developed and studied at length. *Oppolzer's Lehrbuch der Bahnbestimmung.* Professor MYERS.

Required: Mathematics 1, 3, 7, 9, 14, 16; Astronomy 4.

9. CELESTIAL MECHANICS.—This course is a continuation of course 7, and has to do chiefly with the development and discussion of the absolute perturbations both for the case in which the orbital eccentricities and inclinations are small, and in which they are so large as to make the ordinary series too slowly convergent, or even divergent. Some time is also given to the study of subjects connected with figures of equilibrium of the heavenly bodies, and such other questions as are treated in Tisserand's Mecanique Celeste. Professor MYERS.

Required: Astronomy 7.

10. ASTRONOMICAL SEMINARY AND THESIS.—The work of this seminary is on subjects either related to those considered in the senior courses, or connected with questions arising out of thesis investigations. This course is given in conjunction with Astronomy 7 and 9, or with Mathematics 12 and 13, according as the one or the other is current. *I. and II.; Tu., Th.; 7; (2).* Professor MYERS.

11. CALCULUS OF VARIATIONS.—See Mathematics 20.

12. SPHERICAL HARMONICS.—See Mathematics 21.

13. POTENTIAL FUNCTION.—See Mathematics 22.

14. OBSERVATIONAL ASTRONOMY.—The laboratory method of presentation is exclusively used in this course. Direct observational studies of celestial phenomena, with and without instrumental aid, constitute the major portion of the work. The problems set for solution will be largely individual and will be adapated to the degree of skill and maturity of the student. Advanced students may here find an introduction to the working methods of an astronomical observatory. In connection with Astronomy 5 it presents the underlying

principles and methods of astronomy from both the theoretical and practical sides, to such an extent as to meet the requirements of a liberal education. *I.; Tu., Th.; 5; (2).* Professor MYERS and Mr. BRENKE.

Required: Mathematics 1, 3.

BIOLOGY

1. ELEMENTARY BIOLOGY.—This is a laboratory and lecture course on the morphology, physiology, and œcology of both botanical and zoölogical types. The work is so directed as to lead to an acquaintance with the simpler generalizations of biology, and is intended as a preparation for the more extensive and thoroughgoing work of the major courses in botany and zoölogy. *I.; daily; 1 and 2; (5).* Assistant Professor SMITH and Mr. HOLFERTY.

2. ADVANCED GENERAL BIOLOGY.—For those who have taken a year's work in either botany or zoölogy, a semester's work in general biology is offered and especially recommended. It is intended to review, systematize, extend, and unify the student's knowledge of the phenomena and laws of life and of the relations of plant and animal, of living and non-living matter, and of biology to the other sciences. It will be taught as a seminary subject, with occasional lectures and assigned readings. It is primarily a junior or senior study. *II.; daily; 6 and 7; (5).* Professors BURRILL and FORBES.

Required: A major course in Botany or Zoölogy.

BOTANY

1. HISTOLOGY AND PHYSIOLOGY.—General vegetable histology and vegetable physiology, or an introductory study of the cells and tissues of plants and their courses of development in structures and organs; and studies in the general activities of plants correlated with external conditions. Lectures or recitations and laboratory work. *II.; daily; 6 and 7; (5).* Professor BURRILL and Mr. HOLFERTY.

Required: Entrance credit in Botany, or Biology 1; Chemistry 1; Art and Design 1.

2. MOROPHOLOGY.—The general morphology and taxonomy of plants, including a study of selected types in each of the great divisions of the vegetable kingdom. Lectures or recitations and laboratory work, with occasional field excursions. *I.; daily; 6 and 7; (5).* Professor BURRILL and Mr. HOLFERTY.

Required: Entrance credit in Botany, or Biology 1; Art and Design 1.

In courses 1 and 2 taken together, either in the order of the numbers or the reverse, there is offered a comprehensive treatment of the subject, to serve the double purpose of an introduction to the science for those who desire to continue the study, and as a complete course for general students. Each semester's work is, however, independent, and may be separately credited.

3. Cytology and Physiology.—Mostly laboratory work and assigned reading. The course extends through the year, but the work of each semester may be credited separately under the designations of 3a and 3b. The first semester is devoted mainly to cytology and histology, with special attention to technique; during the second semester experimental physiology receives chief attention. *I. and II.; daily; 1 and 2; (5 each semester).* Professor Burrill and Mr. ....

Required: Botany 1.

4. Taxonomy of Special Groups.—Mostly laboratory and herbarium work, and assigned reading. Field excursions are required. The course extends through the year, but the work of each semester may be credited separately under the designations of 4a and 4b. The first semester is devoted mainly to spermaphytes, the second to sporophytes. *I. and II.; daily; 1 and 2; (5 each semester).*

Required: Botany 2.

5. Bacteriology.—An introduction to the knowledge of the subject and instruction in methods. Only those who can give extra time when occasion demands it should make application. *II.; daily; 3 and 4; (5).* Professor Burrill and Mr. Holferty.

Required: Chemistry 1, and at least one semester's work in Biology, Botany, or Zoölogy, in the University.

6. Bacteriology for Sanitary Engineers.—Bacteriological methods and their application in water analysis and sewerage. *I. (last seven weeks); daily; 3 and 4; (2).* Professor Burrill and Mr. Holferty.

7. Plant Pathology.—Diseases and injuries of plants. Mostly laboratory, herbarium, and field work and assigned reading. *I.; M., W., F.; 1 and 2; (3).* Professor Burrill and Mr. Clinton.

Required: Botany 1, 2.

8. Economic Botany.—Useful plants and plant products. Lectures and assigned reading. *I.; Tu., Th.; 1 and 2; (2).* Professor Burrill.

9. Investigations and Thesis.—Research work upon selected subjects. Special arrangements for this work should be made during

the preceding year. *I. and II.; daily; arrange time; (5).* Professor BURRILL.

Required: Botany 1, 2, and at least one year from 3, 4, 5, 7.

10. SEMINARY.—Reports and discussions upon assigned topics and results of research work. For advanced and graduate students. *I. and II.; F.; arrange time; (1).* Professor BURRILL.

COURSES FOR GRADUATES

101. BIOLOGICAL BOTANY.—The preparation and study of material by histological and embryological methods, and experiment work with living vegetation in the laboratory and field in working out special problems in the development, physiology, and pathology of plants.

102. SYSTEMATIC BOTANY.—Critical and comparative studies of species included in chosen groups of spermaphytes or sporophytes, or from selected geographic areas, in connection with considerations of genealogic development, geographic distribution, and interrelated association.

103. BACTERIOLOGY.—Investigations upon morphologic and physiologic variation due to treatment; systematic studies upon the number, validity, and relationship of species; researches upon special saprophytic or parasitic kinds of bacteria and upon methods of favoring or combating their activities.

104. EVOLUTION OF PLANTS.—Observations and experiments upon plants and studies in related literature, in gaining information upon such topics as the following: The influence of environment, effects of self and cross fertilization, tendencies of variation, philosophy of selection, nature and laws of heredity.

CHEMISTRY

1. ELEMENTARY AND EXPERIMENTAL CHEMISTRY.—This course deals with the general principles of the science; the commoner elements only and their typical compounds are studied, and these are considered largely for the purpose of illustration.

The laboratory work comprises a series of such experiments, many of them quantitative, as serve best to illustrate the relations between the observed facts and the general principles, and to familiarize the student with the methods of chemistry. *Remsen's Introduction to Chemistry. I.; Lecture, M., Tu., W., F., 5; Laboratory, section A, M., W., F., 1 and 2 or 2 and 3; section B., M., W., F., 6 and 7 or 7 and 8; section C (engineers only), Tu., Th., 6 and 7 or*

7 and 8; for engineers, (4); for all others, (5). Professor PALMER, Associate Professor GRINDLEY, Mr. SAMMIS, and Mr. FRAPRIE.

1a. MINOR COURSE—ELEMENTARY AND EXPERIMENTAL CHEMISTRY.—Similar to 1, but comprising only recitations and laboratory work. *Remsen's Introduction to Chemistry. II.; Recitations, Tu., Th., S., 1; Laboratory, M., W., F., 1 and 2; (5).* Associate Professor GRINDLEY and Mr. SAMMIS.

2. DESCRIPTIVE INORGANIC CHEMISTRY.—This course is required of all chemical students. It is mainly devoted to a study of the metallic elements, their classification, compounds, and chemical properties. The work is from lectures and assigned texts, without laboratory work. *Remsen's Advanced Course. II.; section A, M., W., F.; 1; section B, M., W., F.; 2; (3).* Associate Professor GRINDLEY.

Required: Chemistry 1.

2a. INORGANIC PREPARATIONS.—This is a laboratory course designed to accompany the descriptive work of course 2. The work includes the precipitation, crystallization, and purification of various salts, the material being largely obtained from laboratory wastes. *Thorp's Inorganic Chemical Preparations. II.; Tu., Th.; 1, 2, and 3; (3).* Associate Professor GRINDLEY, and Mr. SAMMIS.

Required: Chemistry 1.

3a. QUALITATIVE ANALYSIS.—This course includes a study of salts, their formation, solubilities, chemical reactions, etc. The periodic classification of the elements is made the basis for developing the principles of analysis. The work in the laboratory, after illustrating these principles, is occupied with the determination of basic and acid constituents of a given number of unknown substances. Analysis is also made of more complex substances, including natural and commercial products; and the work concludes with a comparative study of methods, difficult separations and problems in synthesis. *I. or II.; Lecture, section A, Tu., Th., 5; section B, Tu., Th., 8; Laboratory, daily, section A, 3 and 4; section B, 6 and 7; section C, M., W., F., 3, 4, and 5; (5; for engineers, 3).* Associate Professor GRINDLEY, Mr. SAMMIS, and Mr. FRAPRIE.

Required: Chemistry 1.

3b. QUALITATIVE ANALYSIS, MINOR.—Same as 3a, but requiring the first half of the *semester; (3).* Associate Professor GRINDLEY, Mr. SAMMIS, and Mr. FRAPRIE.

Required: Chemistry 1.

4. ELEMENTS OF ORGANIC CHEMISTRY, MINOR.—A course in

organic chemistry, provided more especially for students of agriculture and natural science. The instruction is directed mainly to the consideration of the general characteristics and the mutual relations of certain of the more important classes of carbon compounds, particularly the fats, the carbohydrates, and the proteids. *II. (last half); Lecture, M., W., F., 3; Laboratory, Tu., Th., 3, 4, and 5; (2).* Professor PALMER and Mr. SAMMIS.

Required: Chemistry 1, 3b.

5a. QUANTITATIVE ANALYSIS.—General principles and practice of gravimetric and volumetric analysis. This course is directed particularly to the general principles of quantitative analysis, including stoichiometry and the analysis of silicates. It is preliminary to all other courses in quantitative analysis. Lectures and assigned text from Fresenius, Cairns, and the journals. *I. or II.; Lecture, M., W., 6; Laboratory, 10 periods a week, arrange time; (5).* Professor PARR, Mr. ROSE, and Mr. WALTON.

Required: Chemistry 3a.

5b. ANALYSIS OF VARIOUS INORGANIC SUBSTANCES, as clay, soils, ores, fertilizers, etc., etc. *I. or II.; Lectures, Tu., 5; Laboratory, 6 or 12 periods a week; arrange time; (3 or 5).* Mr. ROSE and Mr. WALTON.

Required: Chemistry 5a.

5c. EXAMINATION AND ANALYSIS OF FOODSTUFFS, as milk, butter, cereals, meats, etc. *II.; Lecture, Th., 5; Laboratory, 4 or 12 periods a week; arrange time; (2 or 5).* Mr. ROSE.

Required: Chemistry 5a.

6a. CHEMICAL TECHNOLOGY.—This is a course of lectures comprising a study of technological chemistry as illustrated in those industries having a chemical basis for their principal operations and processes. Much use is made of the journals. *Thorp's Industrial Chemistry* is used as a guide. No laboratory work. *II.; M., W.; 3; (2).* Professor PARR.

Required: Chemistry 3a.

6b. METALLURGY.—Special attention is given to the effect of impurities in ores upon metallurgical processes and finished products. Fuels, refractory materials, and fluxes are described and their value and application explained. A series of lantern slides illustrating actual plants in operation together with specimens of furnace material and products are used in illustration. Much use is made of journals, annuals, and monographs setting forth the best practice. *I.; M., W., F.; 3; (3).* Professor PARR.

Required: Chemistry 5a.

7. (a) Physical Chemistry.—A course in physical chemistry, consisting mainly of laboratory work. It comprises determinations of vapor density, specific heat, depression of freezing point, elevation of boiling point, electrical conductivity, etc., and calculation of molecular and atomic weights from the data thus obtained.

(b) Thermochemistry, including use of the bomb calorimeter.

(c) Use of Spectroscope and polariscope for determination of constants and for quantitative analysis. *I. or II.; arrange time; (3, 5, or 10).* Professor Palmer and Mr. Fraprie.

Required: Chemistry 2, 5a; Physics 1, 3.

8. Iron and Steel Analysis.—Analyses are made of all the constituents by both rapid or technical and standard methods. The course also includes the analysis of furnace slags and a study of the methods for decomposing ores and refractory products. *II.; daily; arrange time; (3).* Professor Parr.

Required: Chemistry 5a.

9. Organic Chemistry.—The work of this course consists in the detailed discussion of the characteristics of several of the more typical and simple organic compounds, followed by the briefer consideration of most of the important classes of the derivatives of carbon. *Remsen's Organic Chemistry* is used as a text-book, and *Richter's Organic Chemistry* as a reference book. Must be accompanied by either 9a, 9b, or 9c. *II.; M., W., F.; 7; (3).* Professor Palmer and Mr. Rose.

Required: Chemistry 2, 5a.

9a. Organic Synthesis.—Laboratory work for students of the chemical course, consisting of the preparation of the typical organic compounds. *II.; arrange time; (2).* Professor Palmer and Mr. Rose.

9b. Organic Analysis.—Laboratory work for students of the chemical course, consisting of either ultimate organic analysis or proximate organic analysis, or both. *I.; Laboratory, 9 or 15 periods a week; arrange time; (3 or 5).* Professor Palmer and Mr. Rose.

9c. Laboratory work in organic chemistry for students of the medical preparatory course. A few typical organic compounds are prepared, but the work consists mainly in a study of the chemical reactions and transformations of such organic substances as are especially involved in processes of nutrition or are used in medical practice. *II.; Laboratory, 6 or 15 periods a week; arrange time; (2 or 5).* Professor Palmer and Mr. Rose.

10. Sanitary Analysis.—The work consists in the examination

and analysis of potable and mineral waters, air, etc. *I.; M., W., F., or daily; 3 and 4; (3 or 5).* Professor PALMER and Mr. ROSE.

Required: Chemistry 5a or 20.

11. INVESTIGATIONS AND THESIS.—Candidates for graduation from the chemical courses are required to devote at least three hours per day for one year to the investigation of some selected chemical subject, the results of which are to be embodied in a thesis. The subject must be determined upon by consultation with the professors of chemistry before the first Monday in November. Between that time and the end of the holiday recess an index to the bibliography of the subject must be prepared and presented to the professor in charge of the investigation. *I. and II.; 15 periods a week; arrange time; (5 each semester).* Professors PALMER and PARR, and Associate Professor GRINDLEY.

Required: Chemistry, 30 hours.

12. THEORETICAL CHEMISTRY.—A course of instruction which includes discussions of the principles and theories of general chemistry. *Ostwald's Outlines of General Chemistry,* and *Nernst's Theoretical Chemistry. II.; M., W., F.; 2; (3).* Professor PALMER.

Required: Chemistry 2, 5a, and either 4 or 9.

13. AGRICULTURAL CHEMISTRY.—A course of lectures upon the chemical principles and processes involved in agriculture, taken conjointly with laboratory practice in analysis of agricultural products and materials. The work includes the quantitative separation and estimation of the constituents of agricultural products, analysis of fertilizers, soils, rain and drain waters, plants, foods, dairy products, etc. *Johnson's How Crops Grow and How Crops Feed; Storer's Chemistry in Its Applications to Agriculture. I. and II.; daily; 3; (5 each semester).* Associate Professor GRINDLEY.

Required: Chemistry 3b, 4.

14. ORGANIC CHEMISTRY.—Lectures and reading upon special chapters of organic chemistry. *I.; Tu., Th.; 7; (2).* Professor PALMER and ....

Required: Chemistry 9.

15. (a) and (b) METALLURGICAL CHEMISTRY.—This course includes (a) the wet assay of copper, lead, zinc, and other ores, arsenical and complex as well as the simpler forms, also the analysis of finished metallurgical products; as, commercial lead, spelter, copper, etc.; during the last half of the term the work is occupied (b) with the fire assay of lead, gold, and silver ores. Fluxes, reagents, and charges are studied in connection with various typical ores and

practice given in use of the crucible and muffle furnaces and in the manipulations connected with fire assaying. *I.; M., W., F.; 3, 4, and 5; (4).* Professor PARR and Mr. ROSE.

Required: Chemistry 5a; Mineralogy 1.

15. (c) and (d) ELECTRO-CHEMICAL ANALYSIS.—A study (c) of methods and practice in quantitative determination by electrolytic separation and deposition of metals and compounds, and (d) a study of the methods employed in the electrolytic separation and refining of metals, treatment of ores, etc. The laboratory work involves practice in actual separations, a quantitative check being made on all results. *II.; M., W., F., or daily; 3, 4, and 5; (3 to 5).* Professor PARR and Mr. ROSE.

Required: Chemistry 5a.

16. CHEMISTRY FOR ENGINEERS.—This course is arranged particularly for mechanical engineers. It involves the proximate analysis of coals, determination of calorific power, technical analysis of furnace gases, examination of boiler waters, lubricating oils, etc. *II.; Lecture, F., 5; Laboratory, section B, Th., 3, 4, 5; F., 3, 4; section A, W.; 4, 5; Th., 3, 4, 5; (3).* Professor PARR.

Required: Chemistry 1.

17. INDUSTRIAL CHEMISTRY.—A laboratory course in the preparation of chemical products from raw materials. The manufacture and proving of pure chemicals, fractionation, and other processes of the manufacturing chemist. *II.; daily; Laboratory 15 periods a week, arrange time; (5).* Professor PARR.

Required: Chemistry 5a, 18.

18. SPECIAL ADVANCED COURSES.—Special courses as indicated below, consisting mainly of laboratory work, may be arranged for those competent to pursue them. From 1 to 10 hours' credit will be allowed in the undergraduate courses for such work.

(a) Technical Gas Analysis, 1 hour to 3 hours.

(b) Metallurgical Chemistry, 3 hours to 10 hours.

(c) Chemistry of beet sugar industry, 2 hours to 10 hours.

(d) Analysis of paints, oils, and varnishes, 2 to 5 hours. *Arrange time.* Professors PALMER and PARR.

19. SEMINARY.—Reports and discussions upon assigned topics from current chemical literature. One session each fortnight during the junior and senior years. *S.; (1).* Professor PALMER and Mr. ROSE.

20. QUANTITATIVE ANALYSIS.—An elementary course intended especially for such students of other departments as desire some

training in the processes of quantitative analysis, but have not the time or the opportunity to enter the regular course in this subject. The work may vary in character, to some extent, according to the need of the individual student. *I. or II.; any two or four days; arrange time; (2 or 3).* Mr. ROSE.

21. PROXIMATE ORGANIC ANALYSIS.—The analysis and valuation of various commercial organic materials and products, including fats, oils, food stuffs, beverages, plants, drugs, medicines, nostrums, etc. *One or two semesters; Laboratory, 15 periods, arrange time; (5 or 10).* Professor PALMER and Mr. ROSE.

22a. PHOTOGRAPHY.—Offered to engineering students and others who wish to obtain a general knowledge of photography. In this course the general subject is covered by lectures and laboratory work, the latter varying to some extent to suit the special line of work that the student expects to follow. *I.; Lecture, Tu., Th., 6; Laboratory, 4 periods, time to be arranged; (2).* Professor PARR and Mr. WILDER.

Required: Physics 1, 3; Chemistry 3b, unless otherwise arranged.

22b. PHOTOGRAPHY.—Offered especially for scientific students and others desiring a more thorough knowledge of photography than is offered in course 22a. This course is of special value to any intending to teach those branches in which the optical lantern is extensively used. The early part of the course is devoted to a general review of the methods and practices of photography, with sufficient laboratory work to make the student familiar with the same. Following this some time is devoted to the optical lantern, with sufficient practice on the part of the student to familiarize him with the manipulation of such apparatus. This is accompanied by instruction in the making and use of lantern slides. Instruction in photomicrography also has a place in this course, and students so desiring may pursue such work as far as time and the facilities of the department will allow. *II.; Lecture, M., W., F.; Laboratory, 6 periods, time to be arranged; (3).* Professor PARR and Mr. WILDER.

Required: Chemistry 3a; Physics 1, 3. In College of Science, when recommended by Dean, these requirements may be omitted.

22c. REPRODUCTION OF DRAWINGS, ETC.—Provision is here made for a general course in the methods of reproduction made use of in the engineering professions. Blue-printing, black-printing, hectographing, and the other methods in use are explained by lectures and laboratory work. No distinct credit is given for such work, but the

time so spent is deducted from that required in other courses, and so credited to the student doing the work. This work is offered to such students as may be required to do it as a part of some regular course, the time so spent to be determined by the instructor having such regular course in charge, and to students who elect it with approval of the proper authority. Mr. WILDER.

23 (a) and (b). HOUSEHOLD CHEMISTRY.—The first semester is largely devoted to practice in general analytical methods, both gravimetric and volumetric. The second is occupied chiefly with the examination of materials used in the household. Analyses are made of baking powders, vinegars, syrups, sugars, soaps, soap powders, wallpapers, etc. *I. and II.; daily; 6 and 7; (5 each semester).* Professor PARR and Mr. ROSE.

Required: Chemistry 3a.

24. TOXICOLOGY.—Mainly laboratory work upon the detection and estimation of the more common poisons, organic and inorganic. wall papers, etc. *I. and II.; daily; 6 and 7; (5 each semester).* Professor PALMER and Mr. —

Required: Chemistry 2, 3b, 5a, and either 4 or 9.

25. URINALYSIS.—Chemical and microscopic examination of urine. *I. or II.; Laboratory 6 periods, arrange time; (2).* Mr. ROSE.

Required: Chemistry 2, 3b, 5a.

COURSES FOR GRADUATES

101. ORGANIC CHEMISTRY.—Special investigations in the aliphatic or in the aromatic series.

102. INORGANIC CHEMISTRY.—Research work in general inorganic chemistry, including the critical and constructive study of methods of analysis, both quantitative and qualitative.

103. PHYSICAL CHEMISTRY.—Investigation of special problems, including also thermo-chemical research.

104. CHEMISTRY OF FOODS.—Investigations of the composition, fuel value, digestibility, and dietary value of foods and the chemical changes involved in cooking.

105. AGRICULTURAL CHEMISTRY.—Special investigations in the field of agricultural chemistry, including the chemistry of plants, foods, soils, and rain, drain and ground waters.

106. RESEARCH IN METALLURGICAL CHEMISTRY.—(a) Action of solvents in extraction of gold and silver from their ores. (b) Methods of analysis of ores and products.

107. INVESTIGATION OF WATER SUPPLIES.—In connection with State Water Survey.

108. INVESTIGATION OF FUELS.—

(a) Heating power, calorimetric methods.
(b) Adaptation of bituminous coal to gas manufacture, purification of products.
(c) Coke and by-products.

109. SPECIAL PROBLEMS IN INDUSTRIAL CHEMISTRY.—

(a) Corrosion and scaling of steam boilers.
(b) Purification of feed waters.
(c) Cements and mortars.
(d) Paints and pigments.

CIVIL ENGINEERING

1. LAND SURVEYING.—Areas and distances by chain, compass, and plane table; U. S. public land surveys, including legal points involved in the reëstablishment of boundaries; magnetic variation and determination of true meridian. The students solve numerous problems in the field with instruments. *Bellows and Hodgman's Surveyor's Manual. I.; daily; 6 and 7; (5).* Assistant Professor KETCHUM.

Required: General Engineering Drawing 1, 2; Math. 3.

2. TOPOGRAPHICAL DRAWING AND SURVEYING.—Topographical drawing is given during the bad weather of the first semester. During the second semester topographical surveying is taught, in which students solve problems with the plane table and the stadia, and make a topographical survey and plot the notes. This subject must be taken the first semester in connection with course 1 above, and the second semester in connection with course 3 below.

3. TRANSIT SURVEYING AND LEVELING.—Construction, adjustment, and use of the transit and level; angles, inaccessible distances, and areas with the transit; profiles and contours with the level. The instruments are in constant use by the students whenever the weather permits. In connection with this subject students may receive instruction in blue-printing, etc., chemistry 22c. *Baker's Engineers' Surveying Instruments. II.; daily; Section A, 2 and 3, Section B, 6 and 7; (5).* Assistant Professor KETCHUM.

Required: Civil Engineering 1.

4. RAILROAD ENGINEERING.—In the field practice the class makes preliminary and location surveys of a line of railroad of sufficient length to secure familiarity with the methods of actual practice. Each

student makes a complete set of notes, maps, profiles, calculations, and estimates. *Godwin's Railroad Engineers' Field-Book, and Tratman's Track. I.; M., W., F.; 6, 7, and 8; Tu., Th.; three periods; S.; forenoon; (5).* Assistant Professor KETCHUM.

Required: Civil Engineering 1, 2, 3.

4a. RAILROAD ENGINEERING.—The first eleven weeks of course 4 are for students in municipal and sanitary engineering. *(3).*

5. MASONRY CONSTRUCTION.—The students have experiments in the masonry laboratory, in testing cement, mortar, stone, and brick. *Baker's Masonry Construction. I.; M., Tu., W., Th., 1; Laboratory F., 6 and 7; (5).* Professor BAKER.

Required: Theoretical and Applied Mechanics 2; General Engineering Drawing 1, 2.

6. GEODESY.—Geodesy is taught by lectures and assigned reading. *II.; W.; 4 and 5; (1).* Professor BAKER.

Required: Math. 3; General Engineering Drawing 1, 2; Civil Engineering 1, 3; Descriptive Astronomy 4.

10. SURVEYING.—For students in the courses of architecture, architectural engineering, electrical engineering, and mechanical engineering. Areas with chain and compass, U. S. public land surveys, and principles of reëstablishing corners; use of transit in finding distances, areas, and in laying out buildings; use of the level in finding profiles and contours. *Baker's Engineers' Surveying Instruments. II.; M., Tu., W.; section A, 1 and 2; section B, 3 and 4; (3).* Assistant Professor KETCHUM.

Required: Math. 4; General Engineering Drawing 1, 2; Physics 1, 3.

12. BRIDGE ANALYSIS.—Instruction and practice are given in the computation of the stresses in the various forms of bridge trusses, by algebraic and graphical methods, under different conditions of loading. *Johnson's Modern Framed Structures. I.; daily; 2 and 3; (5).* Professor BAKER.

Required: Theoretical and Applied Mechanics 2; Architecture 5.

13. BRIDGE DETAILS.—The student makes a tracing of a shop drawing of a bridge, and then makes a critical report upon each element of the design and computes the cost. Afterward a comparative study is made of the several forms of details employed by leading designers. This must be taken with course 12 above during the first semester, and with course 14 below during the second semester.

Required: Civil Eng'g 12 and free-hand sketches, with dimensions, showing full details of a bridge measured by the student.

14. BRIDGE DESIGN.—Each student designs a bridge, proportioning the sections and working out the details, and afterward makes a complete set of drawings. *II.; daily; 1 and 2; (5).* Professor BAKER.

Required: Civil Engineering 12, 13.

14a. BRIDGE DESIGN. Course 14 above three times a week for municipal and sanitary engineering students. *II.; M. W., F.; 1 and 2; (3).*

15. TUNNELING.—This subject is given by lectures and assigned reading. Students are required to make written reports upon the methods employed in particular tunnels. Some time is given to practice in boring wells, dredging, quarrying, and sub-aqueous blasting. *II.; W.; 4 and 5; (1).* Professor BAKER.

Required: Math. 1, 3, 6; General Engineering Drawing 1, 2; Mechanical Engineering 1, 16, 17; Chemistry 1; Physics 1, 3.

16. ENGINEERING CONTRACTS AND SPECIFICATIONS.—A study is made of the fundamental principles of the law of contract, and of examples of the general and technical clauses of various kinds used in engineering specifications. *Johnson's Engineering Contracts and Specifications. II.; M., Tu.; 3; (2).* Professor BAKER.

Required: Civil Engineering 5, 12, 13; Municipal and Sanitary Engineering 2, 3.

17. RAILROAD STRUCTURES.—Instruction is given by lectures and references to standard authorities. Current practice is studied by the examination of existing structures and by means of a collection of the standard drawings of leading railroads. *II.; Th., F., 3 and 4; (2).* Assistant Professor KETCHUM.

Required: Civil Engineering 4.

COURSES FOR GRADUATES

All primary unless otherwise stated.

101. Location and Construction.
102. Railway Track and Structures, and their Maintenance.
103. Yards and Terminals.
104. Motive Power and Rolling Stock.
105. Signal Engineering.
106. Railway Operation and Management.
107. Bridge Designing.
108. Cantilever and Swing Bridges.
109. Metallic Arches.
110. Metallic Building Construction.

111. Roof Construction.

112. Stereotomy.

113. History of the Development of Bridge Building—Secondary.

128. Practical Astronomy.

129. Description of Work Done.

130. Critical Description of Engineering Construction.

131. Translation of Technical Engineering Works from French or German.

132. Any Primary in Theoretical and Applied Mechanics or Municipal and Sanitary Engineering.

133. Any Primary in Mathematics, Mechanical Engineering, or Electrical Engineering—Secondary.

134. Indexing of Civil Engineering Periodical Literature—Secondary.

DAIRY HUSBANDRY

1. MILK.—The character and composition of normal milk; standardizing milk and cream, proper precautions to prevent contamination, and the care and uses of milk. Practice with the Babcock test and the lactometer, supplemented by lectures and reference readings and by laboratory experiments upon contamination of milk. *I.; daily; 1 and 2; (5).* Mr. FRASER and Mr. ERF.

2. MANAGEMENT OF DAIRY FARMS.—The establishment of the dairy herd, and the economical production of milk as depending upon the systems of feeding, the efficiency of the individual cow, and the housing and general care of the herd. *II.; first half; daily; 3; (2½).* Mr. FRASER.

3. CREAM SEPARATION.—A critical study of different systems of cream separation as to rapidity and efficiency, and the comparison of different machines, especially centrifugal separators; designed to be taken in conjunction with course 4. *II.; three days per week, arrange time; (2½).* Mr. ERF.

4. BUTTER MAKING.—Ripening the cream; churning, working, packing and scoring of butter; designed to be taken in conjunction with course 3. *II.; three days per week, arrange time; (2½).* Mr. ERF.

5. FACTORY MANAGEMENT.—Coöperative and company creameries and cheese factories; planning, construction, equipment, and operation of plants, including care of engines and boilers. *II.; second half; 3; (2½).* Mr. ERF.

6. City Milk Supply.—Sources of milk, together with methods of shipping, handling, and distributing, and of securing a healthful product for large cities. *II.; second half; daily; 1 and 2; (2½).* Mr. Fraser.

Required: Regular admission.

7. Dairy Bacteriology.—Bacteria in their relations to milk and its products. *II.; daily; 4 and 5; (5).* Mr. Fraser.

Required: Regular admission; Botany 5.

8. Cheese Making.—Practice in making, curing, and judging cheddar and fancy cheese. *I.; 5 hours, 3 days per week; (5).* Mr. Erf.

9. Investigation and Thesis.—Subject arranged with instructor. *(5 to 10).* Mr. Fraser and Mr. Erf.

DRAWING, GENERAL ENGINEERING

1a. Elements of Drafting.—Geometrical constructions; orthographic, isometric, and cabinet projections. *Tracy's Mechanical Drawing. I., first half; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2½).* Assistant Professor Phillips and Mr. Kable.

1b. Descriptive Geometry.—Problems relating to the point, line, and plane. *Church's Descriptive Geometry. I., second half; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2½).* Assistant Professor Phillips and Mr. Kable.

Required: Drawing, General Engineering 1a.

2a. Descriptive Geometry.—The generation and classification of lines and surfaces; planes tangent to surfaces of single and double curvature; intersections, developments, and revolutions. *Church's Descriptive Geometry. II.; Tu., Th.; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2).* Assistant Professor Phillips and Mr. Kable.

Required: Drawing, General Engineering 1a, 1b.

2b. Lettering.—Plain and ornamental alphabets; free-hand and mechanical lettering; titles and title pages. *Jacoby's Plain Lettering. II., first half; M., W., F.; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (1½).* Assistant Professor Phillips and Mr. Kable.

Required: Drawing, General Engineering 1a.

2c. Sketching and Practical Drawing.—Architectural sketch plans and details; bridge details; machines, machine parts, and

mechanisms; working drawings; drawings finished in color and right line shading. Lectures on drafting instruments and materials; computing instruments; office methods, and reproduction processes. *Lectures and notes. II., second half; M., W., F.; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (1½).* Assistant Professor PHILLIPS and Mr. KABLE.

Required: Drawing, General Engineering 1a, 1b.

3. ADVANCED DESCRIPTIVE GEOMETRY.—For students making a specialty of mathematics. Curved lines of the higher orders; higher single curved, warped, and double curved surfaces. *Church's Descriptive Geometry,* with references to *Warren's General Problems from the Orthographic Projections of Descriptive Geometry. II.; M., W., F.; arrange for two periods; (3).* Assistant Professor PHILLIPS.

Required: Drawing, General Engineering 1a, 1b, 2a.

ECONOMICS

1. INTRODUCTORY COURSE.—This is a beginners' course, consisting of two parts:

a. PRINCIPLES OF ECONOMICS.—This course is introductory to the more advanced courses. Attention is confined to the underlying principles of the science. *I.; M., W., F.; 5; (3).* Dr. HAMMOND.

b. ENGLISH ECONOMIC HISTORY.—This course, which begins with the Norman Conquest, traces the economic development of a great commercial and industrial nation to the present time. Special attention is directed to the evolution of modern industrial institutions. An attempt is made to show how the principles discussed in course *a* have worked themselves out in the course of this industrial development. The course should accompany course *a* and is required of all students in the political science group. *I.; Tu., Th.; 5; (2).* Dr. HAMMOND.

Required: At least 30 hours of University work.

2. PRINCIPLES OF ECONOMICS.—This is a course in general economics offered primarily to junior and senior students of high standing in the colleges of agriculture, engineering, science, and law. Emphasis is laid on the practical side of economic questions. *II.; M., W.; 7; (2).* Professor KINLEY.

Required: Two years of University work.

3. MONEY AND BANKING.—In this course a study of the history and functions of money is followed by a study of the monetary and banking history of the United States and of such topics as the theory

of prices, credit, government paper, the money market, etc. *II.; M., W., F.; 5; (3).* Professor Kinley.

Required: Economics 1 or 2.

4. Financial History of the United States.—This course deals with the growth and management of the national debt, and with the industrial expansion of the country. A brief outline of the main points in this history, from the adoption of the constitution, is first given. Attention is then directed to a detailed study of particular periods. For the year 1900-1901 the subjects for detailed study are the period from the beginning of the War of 1812 to 1850, and that from the close of the Civil War to the present time. *I. and II.; Tu., Th.; 5; (2).* Professor Kinley.

Required: Economics 1 or 2.

5. Public Finance.—This course consists of a critical comparative study of financial theories and methods. Special attention is directed to American conditions. Public expenditure and its relation to the various sources of revenue; taxation, its theory, incidence, and methods; public debts, financial administration, and budgetary legislation, are among the subjects discussed. *II.; M., W., F.; 4; (3).* Dr. Hammond.

Required: Economics 1 or 2.

6. Taxation.—This course gives a more detailed treatment of the problems of American taxation than is possible in course 5. The reports of state tax commissioners are reviewed and discussed, and an attempt is made to develop a system of taxation that shall meet the requirements of our state and local governments. Special attention is given to the present system of taxation in Illinois. This course is suitable for graduates, though it is also open to undergraduates who have had, or are taking, course 5. *II.; Th.; 2; (2).* Dr. Hammond.

7. The Tariff Problem.—This course deals briefly with the theories of international trade and with the history of the tariffs of the U. S. and their influence upon the social and industrial development of the country. Lectures, assigned readings, and discussions. *I.; W., F.; 2; (2).* Dr. Hammond.

Required: Economics 1 or 2.

8. The Transportation Problem.—This course deals with the problems of transportation, especially by railways, in their economic and social aspects. A comparative study is made of the development, management, and regulation of railways in Europe and the United States. Special attention is given to the problem of rate-making.

Lectures, reports, and discussions. *II.; M., W.; 7; (2).* Dr. HAMMOND.

Required: Economics 1 or 2.

9. AGRICULTURAL PROBLEMS.—This course includes a discussion of the economic principles underlying the science of agriculture, a short history of the development of agriculture in this country, and a study of the problems and tendencies of American farming. Lectures and quizzes. *I.; W., F.; 2; (2).* Dr. HAMMOND.

Required: Economics 1 or 2. [Not given in 1900-1901.]

11. STATISTICS.—A short course recommended to all who intend to take the advanced courses in economics. It is of a practical character, and is intended to furnish a knowledge of the statistical method, its limitations and abuses, and to enable the student to use intelligently government reports, statistical publications, trade papers, etc. Lectures, reports, and discussions. *II.; Tu., Th.; 3; (2).* Dr. HAMMOND.

Required: Economics 1a or 2.

12. THE LABOR PROBLEM.—This course is a study of the labor movement and its social significance. Readings, lectures, and quizzes. *I.; M., W., F.; 5; (3).* Professor KINLEY.

Required: Economics 1 or 2. [Not given in 1900-1901.]

13. THEORIES OF PRODUCTION AND CONSUMPTION.—This course is a study of the conditions of social prosperity as dependent on production and consumption. *I.; Tu., Th.; 7; (2).* Professor KINLEY.

Required: 10 hours in Economics. (Not given in 1900-1901.)

14. THE DISTRIBUTION OF WEALTH.—This course deals with the problem of distribution both in theory and practice. The facts of distribution of wealth and of income are first discussed, and attention is then turned to a comparison of theories of wages, interest and profits. An attempt is made to show the relation of the existing distributive process to social prosperity and progress. *I. and II.; Tu., Th.; 7; (2).* Professor KINLEY.

Required: Economics 1a and 1b, or 2 and 1b. The course is open to students of law who have had "Real Property" and "Contracts."

15. PROBLEMS OF PAUPERISM AND CRIME.—This course begins with the history of poor relief in Europe and the United States. As full a discussion of the various methods of reform and prevention is given as the time will permit. *II.; Tu., Th.; 2; (2).* Dr. HAMMOND. (Not given in 1900-1901.)

17. SOCIOLOGY.—An elementary presentation of social principles

and phenomena, and a brief discussion of some of the recent theories advanced to explain the growth and structure of society. *I.; Tu., Th.; 2; (2).* Dr. HAMMOND.

18. THE MONOPOLY PROBLEM.—This course is a more detailed study of a portion of the field of course 14. It discusses the economic aspects of monopoly, the limits of competition, combinations and "trusts," and the relation of monopoly to the public welfare. *I.; M., W., F.; 5; (3).* Professor KINLEY.

Required: Economics 1 or 2.

19. ECONOMIC SEMINARY.—Advanced students will be formed into a seminary for investigation and for the study of current economic literature. Students who write their theses in economics must do so in connection with the seminary work. *I. and II.; arrange time; (4 for the year).* Professor KINLEY and Dr. HAMMOND.

COURSES PRIMARILY FOR GRADUATES

(These courses are open to those students only who have had at least one full year's work in economics.)

101. THE THEORY OF VALUE.—This is an historical and critical study of theories of value.

102. THE HISTORY OF ECONOMIC THOUGHT.—In this course portions of the works of economic writers since the 16th century are read. Lectures are given tracing the course of economic thought in its relation to the prevalent philosophy.

ELECTRICAL ENGINEERING

1. ELECTRICAL ENGINEERING.—Lectures accompanied by laboratory practice (Electrical Engineering 21); for students in other courses of engineering and in architecture. Principles of electrical machinery, selection, installation, operation and testing, distribution and applications of electric power. *II.; Lecture, Tu., Th., 2; Laboratory, arrange one period; (3).* Professor ALDRICH.

Required: Physics 1, 3; Mathematics 9.

2. DYNAMO-ELECTRIC MACHINERY.—Lectures on the principles of construction, operation, and characteristics of dynamo-electric machinery, with special reference to direct current types. *I., last six weeks, and II., first nine weeks; M., W., F.; 1; (2½).* Assistant Professor BROWNE.

Required: Electrical Engineering 3; Physics 4.

3. ELECTRICITY AND MAGNETISM.—A course of lectures and recitations on the elements of the mathematical theory of electricity and

magnetism. Special attention is given to establishing and illustrating by problems the laws and principles of fundamental importance to electrical engineers. *I., first twelve weeks; M., W., F.; 1; (2).* Associate Professor Esty.

Required: Physics 1, 3; Mathematics 9.

4. Telegraphy and Telephony.—Lectures and recitations. Methods of telegraphy,—land and submarine,—the theory of the telephone, and telephone engineering. *II., second nine weeks; M., W., F.; 1; (1½).* Associate Professor Esty.

Required: Physics 4; Electrical Engineering 3.

5. Alternating Currents and Alternating Current Transformer.—Lectures and recitations. A mathematical and graphical treatment of the principles of periodic currents, with the theory of the transformer and applications to practice. *I.; Tu., W., Th.; (3).* Associate Professor Esty.

Required: Physics 4; Electrical Engineering 3.

6. Alternating Current Machinery.—Lectures on the principles of construction, operation and characteristics of single-phase and poly-phase alternating current machinery and rotary converters. *I.; M., W., F.; 3; (3).* Assistant Professor Browne.

Required: Electrical Engineering 2 and 5.

7. Electrical Distribution.—Lectures and practice. Methods and economics of distribution of electric energy for light and power, by direct and alternating currents; insurance rules and regulations; testing distributing circuits. *I., first nine weeks; M., F.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 2 and 3.

8. Electric Power Transmission.—Lectures. The long distance transmission of power by electricity, from generating stations operated by steam and water power, for utilization in lighting, traction, mining, and manufacturing work; economics of project; construction, maintenance and protection of lines; comparison with other systems. *I., second nine weeks; M., F.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 5 and 7.

9. Electric Lighting.—Lectures and practice. Manufacture, care and use of arc and incandescent lamps; economics of installation, and operation of electric lighting systems by central and by substation supply; commercial photometry. *I., first nine weeks; Tu., Th.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 7 and 26.

10. Electric Traction.—Lectures and practice. Principles and

economics of construction, installation, electrical distribution, management, and testing of electric traction system; applications to surface and elevated electric roads and to mine haulage. *I., second nine weeks; Tu., Th.; 2; (1).* Professor ALDRICH.

Required: Electrical Engineering 7.

11. ELECTRIC LIGHT AND POWER PLANTS.—Lectures and practice. Principles and economics of location of site; selection, arrangement, and subdivision of generating units; installation, management, and testing of central and sub-stations for electric light, traction, mining, and manufacturing work. *II.; M., F.; 2; (2).* Professor ALDRICH.

Required: Electric Engineering 6.

12. ELECTRO-METALLURGY.—Lectures on the commercial application of electrolysis; refining metals; treatment of sewage; the electric furnace; electrotyping; electro-plating. *II.; Tu., Th.; 1; (2).* Assistant Professor BROWNE.

Required: Chemistry 1; Physics 4.

13. SEMINARY.—A weekly meeting of instructors and students is held in the department reading room for discussion of topics from the current journals of theoretical and applied electricity. Papers on any original work being done in the department are read and discussed. A card catalogue of references to the leading electrical journals is maintained by the coöperation of members of the seminary with the department. *I.; Tu.; 6 and 7. II.; Tu.; 7 and 8; (1).* Associate Professor ESTY.

Required: Physics 4; Electrical Engineering 2, 3, 22, 31.

14. ALTERNATING CURRENTS.—Lectures on the theory and applications of alternating electric currents, and alternating current phenomena. Elective for undergraduates. *II.; arrange time; (2).* Associate Professor ESTY.

Required: Electrical Engineering 5.

21. ELECTRICAL ENGINEERING LABORATORY.—Arranged for students in other courses of engineering and in architecture. Care, operation, inspection, and testing electrical machinery and distributing circuits. *II.; arrange time; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 1 or 2.

22. ELECTRICAL ENGINEERING LABORATORY.—Experimental study of direct current dynamos, motors, and accessory apparatus; theory and care of instruments; reduction of observations; individual and

comparative tests; complete tests such as are made in the testing laboratories of representative manufacturing establishments. *II.; Th.; 3, 4, and 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 2.

23. ELECTRICAL ENGINEERING LABORATORY.—Experimental study of alternating current instruments, dynamos, motors, and transformers; regulation, efficiency, temperature, and insulation tests. *I., Tu., and II., M.; 3, 4, and 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 22 and 6.

24. ELECTRICAL ENGINEERING LABORATORY.—Advanced direct and alternating current testing work; special problems for investigation; plant, line, and motor service testing. *II.; F.; 3, 4, and 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 23.

25. POLYPHASE TESTING.—Advanced course for seniors in Group I., Electrical Engineering. A critical study and investigation of polyphase machinery and systems; individual and aggregate tests. Elective. *I.; Th.; 3, 4, and 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 23.

26. PHOTOMETRY.—Laboratory work with descriptive lectures. Principles of photometry with candle power, life, and efficiency tests of incandescent and arc lamps. *I.; M.; section A, 4 and 5; section B, 7 and 8; (1).* Assistant Professor BROWNE.

Required: Electrical Engineering 9.

31. ELECTRICAL DESIGN.—Design and drafting with supplementary lectures on the design, calculation, and construction of electromagnetic mechanisms, and dynamo-electric machines. This course is introductory to the fuller courses of the following year. *II.; Tu.; 3, 4, and 5; (1).* Associate Professor ESTY.

Required: Electrical Engineering 2, 3; Physics 4.

32. ELECTRICAL DESIGN.—Design, drafting, lectures. A continuation of the preceding. Includes the design and construction of multi-polar generators and motors, alternating current generators, motors, and transformers. *I.; Th., 6, 7, and 8; II.; Th., 3, 4, and 5; (1).* Associate Professor ESTY.

Required: Electrical Engineering 2, 6, 22, 31.

33. ELECTRICAL DESIGN.—Design and drafting. Supplements

Electrical Engineering 11, and takes up the *ensemble* design of an electric light or power installation, including plans, specifications, and estimates. *II.; W.; 3, 4, and 5; (1).* Associate Professor Esty.

Required: Electrical Engineering 6, 8, 9, 10, 11.

COURSES FOR GRADUATES

Primary

101. Theory of Alternating Currents.
102. Dynamo-Electric Machinery.
103. Alternating Current Machinery.
104. Electrical Transmission of Power.
105. Electric Light and Power Plants.
106. Electro-Metallurgy.
107. Polyphase Testing.
108. Electrical Engineering Research.
109. Electrical Design.

Secondary

111. Theory of Equations.
112. Theory of Determinants.
113. Least Squares.
114. Differential Equations.
115. Calculus of Variations.
116. Spherical Harmonics.
117. Potential Function.
118. Advanced Physical Measurements.
119. Mathematical Physics.
120. Mathematical Theory of Electricity and Magnetism.
121. Physical Chemistry.
122. Metallurgical Chemistry.
123. Electro-Chemistry.

ENGLISH LANGUAGE AND LITERATURE

1. General Survey of English Literature.—*I.; daily; section A, 2; section B, 4; section C, 7; II.; 8; (5).* Miss Carson.

2. Prose Writers of the Eighteenth and Nineteenth Centuries.—*II.; daily; section A, 2; section B, 7; (5).* Miss Carson.

Required: English 1.

3. Nineteenth Century Poetry.—*I. and II.; M., W., F.; 3; (3).* Associate Professor Jayne.

Required: English 1.

4. PROSE WRITERS OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.—*I. and II.; Tu., Th.; 3; (2).* Professor DODGE.

Required: English 1 and 2. [The second semester may be taken without the first.]

4a. NON-DRAMATIC POETRY OF THE SIXTEENTH AND SEVENTEENTH CENTURIES.—*I. and II.; Tu., Th.; 3; (2).* Professor DODGE.

Required: English 1 and 2. [Not given in 1900-1901.]

5. SHAKSPERE AND HISTORY OF THE DRAMA.—Primarily for graduates. *I. and II.; M., W., F.; 2; (3).* Professor DODGE.

Required: English 1, 2, and either 3 or 4. [The second semester may be taken without the first.]

6. HISTORY OF ENGLISH CRITICISM.—Primarily for graduates. *I. and II.; Tu., Th.; 4; (2).* Professor DODGE.

Required: English 1, 2 and either 3 or 4.

7. SEMINARY: ENGLISH FICTION.—Open only to senior and graduate students. *I. and II.; Tu.; arrange time; (1).* Associate Professor JAYNE.

8. OLD ENGLISH (ANGLO-SAXON) GRAMMAR AND PROSE.—*I. and II.; M., W., F.; arrange time; (3).* Professor DODGE.

9. EARLY ENGLISH.—*I. and II.; Tu., Th.; arrange time; (2).* Professor DODGE.

10. OLD ENGLISH POETRY.—*I. and II.; M., W., F.; arrange time; (3).* Professor DODGE.

Required: English 8 and 9.

11. FOURTEENTH AND FIFTEENTH CENTURY LITERATURE.—*I. and II.; Tu., Th.; arrange time; (2).* Professor DODGE.

Required: English 8 and 9. [Not given in 1900-1901.]

12. HISTORY OF THE ENGLISH LANGUAGE.—*I. and II.; W.; arrange time; (2).* Professor DODGE.

Required: English 8 and 9. [Not given in 1900-1901.]

13. ICELANDIC.—*I. and II.; daily; arrange time; (5).* Professor DODGE.

Required: English 8 and 9, or German 1. [Not given in 1900-1901.]

14. OLD ENGLISH LEGAL CODES.—Special course for students of politics, economics, and history. As an introduction to the course, Old English Grammar is studied, so far as is necessary for a proper understanding of early phraseology. Primarily for graduates, but open to undergraduates having sufficient preparation. *I. and II.; M., W.; arrange time; (2).* Professor DODGE.

Required: One year of history, economics, sociology, or English Literature.

15. Seminary: Methods of English Teaching.—Open to senior and graduate students. *I. and II.; W.; arrange time; (1).* Professor Dodge and Associate Professor Jayne.

[The second semester may be taken without the first.]

16. History of American Literature.—*II.; M., W., and F.; arrange time; (3).* Associate Professor Jayne.

17. History of the English Language.—Elementary course. *I. and II.; Tu., Th.; arrange time; (2).* Professor Dodge.

[The second semester may be taken without the first.]

FRENCH

1. Elementary Course.—This course embraces grammatical study, pronunciation, exercises in composition, and conversation. Reading of representative works of modern authors, such as Daudet, Labiche, Jules Verne, and others. *I. and II.; daily; section A, 1; section B, 3; (5).* Assistant Professor Piatt.

2. Nineteenth Century.—(1) The class will read works of Mérimée, George Sand, Balzac, Sandeau, Bourget, Hugo, and others. (2) Outlines of French literature. (3) Assigned readings and reports thereon. *I. and II.; daily; 1; (5).* Professor Fairfield.

Required: French 1 or 5.

3. Seventeenth Century.—(1) Readings from Molière, Corneille, Racine, Lafontaine, Boileau, de Sévigné, and others. (2) Study of French literature and civilization of the century. (3) Advanced composition. (4) Assigned reading. *I. and II.; daily; 2; (5).* Professor Fairfield.

Required: French 2.

4. Eighteenth Century.—(1) The course will consist of lectures in French, themes, and collateral reading. Reading of selected works of Voltaire, Montesquieu, Rousseau, Chénier, and Beaumarchais. (2) Assigned readings. (3) Themes in French upon subjects connected with the course. *I. and II.; M., W., F.; 3; (5).* Professor Fairfield.

Required: French 3.

5. Scientific and Technical French.—Similar to course 1 for first semester. In the second semester the class takes up the study of scientific and technical French. For this purpose a weekly scientific periodical, *La Nature,* published at Paris, is taken by each mem-

ber, and made the basis of the class-room work. Particular attention is given to acquiring a technical vocabulary and to rapid reading. *I. and II.; daily; section A, 2; section B, 7; (5).* Assistant Professor PIATT.

COURSE FOR GRADUATES

101. OLD FRENCH READINGS.—Clédat, Les Auteurs Français du Moyen Age; Suchier, Aucassin et Nicolete; Gautier, La Chanson de Roland. Translation and comparison with the modern idiom. Study of the laws of phonetic changes. Lectures upon Old French philology. Professor FAIRFIELD.

GEOLOGY

1. GEOLOGY, MAJOR COURSE.—This course begins in the second semester, following Mineralogy 1, and is continued through the first semester of the succeeding year (Geology 2). Either semester counts as a major study.

(a) Dynamic Geology. The instruction given under this head is intended to familiarize the student with the forces now at work upon and within the earth's crust, modeling its reliefs, producing changes in the structure and composition of its rock masses and making deposits of minerals and ores. A series of localities is studied in which great surface changes have recently taken place, with a view to ascertaining the character of the forces producing such changes, and the physical evidence of the action of like forces in the past. The subject is taught by lectures, and is abundantly illustrated by maps, models, charts, and views.

(b) Petrographic. This course is a continuation of Mineralogy 1 (b) (p. 241), and deals with fragmental rocks in substantially the same manner as that does with crystallines. [Continued under Mineralogy 2 (p. 242).]

(c) Historical Geology. The work on this subject is substantially an introduction to the history of geology as a science. Especial stress is laid on the development of the North American continent and the evolution of its geographic features.

(d) Paleontology. The scheme of instruction in this subject places before the student the classification adopted for those organic forms occurring as fossils, together with the succession of the various groups in the strata, with the cause, as far as known, for their appearance and disappearance. The student is required to familiarize

himself with selected groups of paleozoic fossils, abundant illustrations of which are placed in his hands. The subject is presented in lectures and demonstrations, each group being considered in connection with its nearest living representative. [Continued under Paleontology 1, p. 247]. *II.; daily; 1 and 2; (5).* Professor ROLFE and Mr. HUBBARD.

Required: Mineralogy 1.

2. MAJOR COURSE CONTINUED.—Economic Geology. The course is devoted to a study of the uses man may make of geologic materials, the conditions under which these materials occur, and the qualities which render them valuable. The instruction is given by text and readings from the various state and government reports, transactions of societies, and monographs in which these subjects are treated, as well as by demonstrations with materials from the collections of the University. *I.; daily; 6 and 7; (5).* Professor ROLFE and Mr. HUBBARD.

Required: Geology 1 or 3.

NOTE.—In dynamic and historical geology Dana's manual is used as a reference book. Petrography is pursued by means of a laboratory guide adapted from Rosenbusch, Zirkel, Roth, Teall, and others. In economic geology the manuals of Kemp and Tarr are used as texts. In paleontology Nicholson, Bernard, and Zittel are used for descriptions of the larger groups, Miller for general distribution, and the various state surveys for species.

3. GENERAL GEOLOGY, MINOR COURSE.—This course includes a selection of such geological facts and theories as should be known to every educated person, with such discussion of them as the time will permit. The subjects treated are fully illustrated. One hour each day is devoted to laboratory work, and this time is about equally divided between the study of minerals, rocks, and fossils.

The instruction is by texts and lectures, using Le Conte's Elements of Geology as the basis for the class-room work, and a specially prepared guide for the laboratory. *II.; daily; 6 and 7; (5).* Professor ROLFE and Mr. HUBBARD.

4. INVESTIGATIONS AND THESIS.—For students who select a geological, paleontological, mineralogical, or geographical subject for a thesis, guidance and facilities are offered for individual investigations in the field and laboratory. *I. and II.; daily; 3 and 4; (5).* Professor ROLFE.

Required: Geology 1, Mineralogy 2, Paleontology 1 or Physiography 1.

NOTE.—Geology 1a, b, c, d may be taken, instead of the minor, by those who have had Mineralogy 1.

The applications of geology to geography are considered in Physiography 1 (p. 253).

COURSES FOR GRADUATES

101. PALEONTOLOGY.—A critical and comparative study of the fossils found in the rocks of Illinois.

102. ECONOMIC GEOLOGY.—The effects which variations in the chemical composition and physical constitution of inorganic substances used in the arts have on the qualities of the manufactured product, and should have on methods of manufacture. A critical examination of the tests now employed in determining the qualities of building stones.

103. ILLINOIS GEOLOGY.—Glacial geology in relation to water supply of drift-covered regions. Dynamic and stratigraphic geology of the Ozark uplift in Illinois.

GERMAN

[For Courses A and B, see p. 288.]

1. ELEMENTARY COURSE.—Thomas's Practical German Grammar; Hewett's German Reader, or other easy narrative prose, with exercises in composition. *I.; daily; section A, 1; section B, 2; section C, 3; section D, 4; section E, 7; (5).* Assistant Professor MEYER and Dr. BROOKS.

2. ENGINEERING COURSE.—For students in the College of Engineering. General descriptive prose, followed by the translation of articles dealing with physics or the history of architecture. *II.; daily; 2; (5).* Dr. BROOKS.

Required: German 1.

3. NARRATIVE PROSE AND MODERN DIALOGUE.—For students in the College of Literature and Arts, and in the College of Science. Hewett's German Reader continued, or other works of a similar character. Bernhardt's Prose Composition. *II.; daily; section A, 2; section B, 8; (5).* Assistant Professor MEYER and Dr. BROOKS.

Required: German 1.

4. DESCRIPTIVE AND HISTORICAL PROSE.—Selections from standard prose writers of the present century, with grammatical review and drill; also exercises in reading at sight. Bernhardt's Prose Composition completed. *I.; daily; section A, 1; section B, 3; section C,*

6; (5). Professor RHOADES, Assistant Professor MEYER, and Dr. BROOKS.

Required: German 1 and 3, or two years of high school work.

5. GERMAN CLASSICS.—One of Schiller's later dramas and one of Goethe's or Lessing's are translated with work in prose composition. *II.; daily; section A, 3; section B, 6; section C, 7; (5).* Professor RHOADES and Assistant Professor MEYER.

Required: German 4.

6. SCIENTIFIC READING.—Required course for students in the College of Science and in the College of Engineering who offer two years of German for entrance. The course is given in two sections; section A, for students specializing in physical science and for engineering students, reads works in physico-mathematical science; section B, for students of natural science and of chemistry, reads works in biological and chemical science, with reports on assigned collateral reading. *II.; daily; section A, 1; section B, 4; (5).* Dr. BROOKS.

Required: German 4.

7. LESSING OR SCHILLER, SELECTIONS.—The authors will be studied in alternate years; in 1900-1901, Schiller's Wallenstein, designated as 7b; in 1901-1902, Lessing's Emilia Galotti and Nathan der Weise, designated as 7a. Students may, if they desire, elect and receive credits for both options. *I.; M., W., F.; 7; (3).* Professor RHOADES.

Required: German 5 or 6, or three years of high school work.

8. SELECTIONS FROM LESSING OR SCHILLER.—The work is designed to supplement course 7, but with the approval of the instructor may be taken separately. The same arrangement will be followed as in course 7, the work being designat d as 8a and 8b. *I.; Tu., Th.; 7; (2).* Professor RHOADES.

Required: German 5.

9. GOETHE.—Translation and discussion of selected work. In 1900-1901, study of Faust, designated as 9b; in 1901-1902, selections from his lyrics, prose works, and classical dramas, designated as 9a. Students may elect and receive credit for both options. *I.; M., W., F.; 8; (3).* Professor RHOADES.

Required: German 7.

10. LECTURES ON GOETHE.—The work is designed to supplement and accompany course 9. *I.; Tu., Th.; 8; (2).* Professor RHOADES.

11. HISTORY OF GERMAN LITERATURE.—Lectures and assigned collateral reading. *II.; Tu., Th.; 7; (2).* Professor RHOADES.

Required: German 7.

12. Heine and the Romantic Poets.—Translations and assigned readings. *II.; M., W., F.; 7; (3).* Professor Rhoades.

Required: German 5.

13. Teachers' Seminary.—Study of methods, text-books, and practical teaching. This course will be required in order to obtain a specific recommendation to teach German. *II.; Tu., Th.; 8; (2).* Professor Rhoades.

Required: German 7 and 12, also 11 unless taken in connection with this course.

GREEK

1. Historical Prose.—Selections from Herodotus, Thucydides, and Xenophon. Greek prose composition once a week. *I.; daily; 4; (5).* Professor Moss.

2. Historical Prose.—Selections from Herodotus, Thucydides, and Xenophon. Greek prose composition once a week. *II.; daily; 4; (5).* Professor Moss.

Required: Greek 1.

3. Xenophon's Memorabilia.—Selections from Plato. *I.; daily; 1; (5).* Professor Moss.

Required: Greek 2.

4. Greek Tragedy.—*II.; daily; 1; (5).* Professor Moss.

Required: Greek 3.

5. Homer.—The Odyssey. *I.; M., W., F.; 3; (3).* Professor Moss.

Required: Greek 4.

6. Homer.—The Odyssey. *II.; M., W., F.; 2; (3).* Professor Moss.

Required: Greek 4.

7. Isocrates.—The Panegyricus. Demosthenes. The private orations. *I.; Tu., Th.; 2; (2).* Professor Moss.

Required: Greek 4.

8. Lucian.—Select dialogues. *II.; Tu., Th.; 2; (2).* Professor Moss.

Required: Greek 4.

HISTORY

[It is recommended that the elementary courses be taken in the following order: History 5, 6, 1, 2. For students who take but one course in History, History 1 is recommended.]

1. Mediæval and Modern European History.—Elementary

introductory course. *I.; M., W., F.; section A, 4; section B, 7; II.; section A, 4; section B, 8; (3).* Dr. SCHOOLCRAFT.

2. HISTORICAL INTRODUCTION TO CONTEMPORARY POLITICS.—The political history of the nineteenth century. The first semester is devoted to the political history of the United States, and the second to that of Europe. The work of either semester may be taken separately. This course, taken with Public Law and Administration 1, constitutes, during the first semester, a course in American history and government; and in the second semester a course in the governments and recent political history of Europe. *I. or II.; Tu., Th.; 4; (2).* Professor GREENE.

3. AMERICAN HISTORY.—The origin and growth of the nation from the beginning of English colonization in America to the close of the reconstruction period. *I. or II.; daily; 1; (5).* Professor GREENE.

Required: History 1 or 2; or, for juniors and seniors in the Colleges of Engineering, Science, and Agriculture, any course in economics or public law and administration.

4. ENGLISH CONSTITUTIONAL HISTORY.—In this study of the growth of the English constitution, some attention is also given to the origins of legal institutions. The course is therefore adapted to the needs of students who expect to follow the profession of law. *I. and II.; M., W., F.; 3; (3).* Dr. SCHOOLCRAFT.

Required: History 1 or an equivalent.

5. THE HISTORY OF GREECE.—This course and History 6 will be useful to students who expect to teach the classics or ancient history in secondary schools. *I.; Tu., Th., F.; 5; (3).* Dr. SCHOOLCRAFT.

6. THE HISTORY OF ROME.—The aim of this course, which furnishes a suitable introduction to History 1, is to give a general survey of the Roman world before the appearance of the Germans, rather than to trace the economic and political history of the city. *II.; M., W., F.; 6; (3).* Dr. SCHOOLCRAFT.

7. THE REVOLUTIONARY ERA IN EUROPE, 1763-1815.—*I.; M., W., F.; 4; (3).* Professor GREENE.

Required: History 1.

8. THE COLONIAL INTERESTS AND COLONIAL POLICIES OF THE EUROPEAN POWERS.—Special attention will be given to the eighteenth and nineteenth centuries. *II.; Tu., Th.; 6; (3).* Professor GREENE.

Required: History 1.

9. MEDIÆVAL HISTORY.—Advanced course. The conflict of the Papacy and the Empire. *I.; M., W., F.; 2; (3).* Dr. SCHOOLCRAFT.

Required: History 1. [May be omitted in 1900-1901.]

10. ENGLAND UNDER THE STUART KINGS.—Puritanism and the Church of England. The conflict between king and parliament. *II.; M., W., F.; 2; (3).* Dr. SCHOOLCRAFT.

[May be omitted in 1900-1901.]

COURSES FOR GRADUATES

101. AMERICAN HISTORY.—Special studies in the development of the West. *I. and II.; M.; 8; (3).* Professor GREENE.

102. ENGLISH HISTORY.—Studies in the period of the Puritan Revolution. *I. and II.; arrange time; (2).* Dr. SCHOOLCRAFT. [This course may be omitted in 1900-1901.]

103. SEMINARY IN AMERICAN HISTORY.—Training in historical research. *I. and II., arrange time; (for undergraduate students, 2; for graduates, 2 or more, at the option of the student and the instruction).* Professor GREENE.

Courses 101 to 103 are primarily for graduates, but they may also be taken by seniors of high standing who have previously taken two or more courses in history.

HORTICULTURE

1. PRINCIPLES OF FRUIT-GROWING.—This course, which is designed for all students in the College of Agriculture, deals with the fundamental principles of fruit culture. It embraces a study of the planting and care of fruit areas. Lectures, recitations, reference readings, and practical exercises. *I.; daily; 2; (5).* Assistant Professor BLAIR and Mr. LLOYD.

2. SMALL FRUIT CULTURE.—A study of the strawberry, raspberry, blackberry, dewberry, currant, gooseberry, cranberry, and juneberry; each studied with reference to the following: Botanical matter, history, importance and extent of cultivation, soil, location, propagation, planting, pruning and training, fertilizers, insect enemies and diseases, spraying, varieties, harvesting, marketing, profits. *II.; Tu., Th.; 2; (2).* Mr. LLOYD.

Required: Horticulture 1.

3. VEGETABLE GARDENING.—Kitchen and market gardening and vegetable forcing; embracing a study of all the common vegetables. *II.; M., W., F.; 2; (3).* Mr. LLOYD.

Required: Horticulture 1.

4. PLANT HOUSES.—The construction and management of conservatories and other plant houses. Text-book and laboratory work. *I., first half; daily; 5; (2½).* Mr. LLOYD.

5. PLANT PROPAGATION.—A study of the methods of securing

and perpetuating desirable varieties of plants,—grafting, budding, layering, making cuttings, pollination, seedage, etc. Text-book and laboratory work. *I., second half; daily; 5; (2½).* Mr. LLOYD.

Required: Horticulture 4.

6. NURSERY METHODS.—A study of the various methods of nursery management and their relation to horticultural practices in general. Lectures, reference readings, and laboratory work. *II., first half; daily; 5; (2½).* Mr. LLOYD.

Required: Horticulture 5.

7. SPRAYING.—The theory and practice of spraying plants, including a study of materials and methods employed in the combating of insects and fungous diseases. Text-books and practical demonstrations. *II., second half; daily; 5; (2½).* Mr. LLOYD.

Required: Horticulture 1.

8. ORCHARDING.—A comprehensive study of pomaceous fruits: apple, pear, quince; drupaceous or stone fruits: plum, cherry, peach, nectarine, apricot. Each fruit studied with reference to the points enumerated under 2, above. Lectures, text-books, and laboratory work. *I.; daily; 4; (5).* Assistant Professor BLAIR.

Required: Regular admission; Horticulture 1.

9. FORESTRY.—This course embraces a study of forest trees and their natural uses, their distribution, and their artificial production. The relations of forest and climate are studied, and the general topics of forestry legislation and economy are discussed. *II.; Tu., Th.; 4; (2).* Professor BURRILL.

Required: Botany 2.

10. LANDSCAPE GARDENING.—Ornamental and landscape gardening, with special reference to the beautifying of home surroundings. Lectures illustrated by means of lantern slides and charts. *II.; M., W., F.; 4; (3).* Assistant Professor BLAIR.

11. ECONOMIC BOTANY.—Useful plants and plant products. Lectures and assigned readings. *I.; Tu., Th.; 3; (2).* Professor BURRILL.

Required: Regular admission; Botany 2.

12. EVOLUTION OF CULTIVATED PLANTS.—Comprising a study of organic evolution and the modification of plants by domestication. *I.; M., W., F.; 3; (3).* Assistant Professor BLAIR.

Required: Regular admission; two years of University work.

13. VITICULTURE.—A comprehensive study of the grape and its products. *I., first half; daily; 5; (2½).* Assistant Professor BLAIR.

Required: Horticulture 1 and 8.

14. NUT CULTURE.—The cultivation and management of nut bearing trees for commercial purposes. *I., second half; daily; 5; (2½).* Assistant Professor BLAIR.

Required: Regular admission; Horticulture 1 and 8.

15. FLORICULTURE.—The study and management of conservatory and house plants. *II.; daily; 5; (5).* Assistant Professor BLAIR.

Required: Regular admission; Horticulture 4 and 5; Botany 2.

16. GENERAL HORTICULTURE.—For students not registered in the College of Agriculture. A course covering the general principles and processes of fruit-growing, gardening, floriculture, and ornamental planting. Suited to needs of individual students so far as practicable. *I.; daily; 3; (5).* Assistant Professor BLAIR and Mr. LLOYD.

17. COMMERCIAL HORTICULTURE.—A course giving practical training for those students intending to follow horticulture as a business. Work in houses, orchards, and gardens—suited to ability and requirements of each student. *I. and II.; arrange hours; (5-20).* Mr. LLOYD.

18. EXPERIMENTAL HORTICULTURE.—A course for those intending to engage in professional horticulture or experiment station work. For advanced students. *I.; daily; 1; (5).* Assistant Professor BLAIR.

Required: Regular admission; twenty hours work in horticulture.

19. SPECIAL INVESTIGATION AND THESIS WORK.—Required of candidates for graduation. *II.; daily; arrange time; (5).* Professor BURRILL and Assistant Professor BLAIR.

ITALIAN

1. GRAMMAR AND READING.—Grandgent's Italian Grammar, reading of modern authors; Dante's Divina Commedia, outlines of Italian literature. *I. and II.; M., W., F.; arrange time; (5).* Professor FAIRFIELD.

LATIN

1. CICERO AND PLINY.—De Amicitia and De Senectute; composition based on the text; selections from Pliny's Letters. Roman life in Pliny's time. This course is required of students who offer but nine credits in Latin for admission. *I. and II.; daily; 2; (5 each semester).* Mr. CAMPBELL.

2. Livy.—Selections from the XXI. and XXII. books. Latin composition based on the text. The main object of this course is to secure facility in composition and translation. *I.; daily; 1; (5).* Professor Barton.

3. Terence.—Phormio and selections from other plays. Scenic antiquities. Outlines of Roman literature. *II.; daily; 1; (5).* Professor Barton.

Required: Latin 2.

4. Horace and Catullus.—The odes of Horace and the lyrics of Catullus. Their art as a contribution to the world's best literature. *I.; Tu., W., Th., F.; 6; (5).* Professor Barton. This course will be given in alternate years with course 5.

5. Horace and Tacitus.—The Satires and Epistles of Horace. Especial reference to the private life of the Romans in the time of Augustus. The Germania of Tacitus in connection with Cæsar's account of the customs of the Germans. *I.; Tu., W., Th., Fr.; 6; (5);* Professor Barton.

Required: Latin 2, 3. [Not given in 1900-1901.]

6. Tacitus and Plautus.—The Agricola of Tacitus considered both from the standpoint of biography and as an introduction to the style of the author. Plautus, two plays. Comedy as an exponent of social life. *II.; Tu., W., Th., F.; 6; (5).* Professor Barton.

Required: Latin 2, 3.

7. The Roman Historians.—Readings from Cæsar, Livy, Sallust, Tacitus, and Suetonius. The course is partly grammatical and partly devoted to a study of the differences of style and method of treating historical themes. *I.; M., Tu., W., Th.; 3; (5).* Professor Barton.

Required: Latin 2, 3.

8. Roman Satire and Epigram.—Selections from Juvenal and Martial. Society in the first century. *I.; M. Tu., W., Th.; 3; (5).* Professor Barton. [Not given in 1900 and 1901.]

Required: Latin 2, 3.

9. Teachers' Course.—A study of the aims and essentials of preparatory Latin teaching, methods of presentation, and conditions which surround the study of Latin in the high schools of the state. Students will, for a portion of the time, do the work of a preparatory class and at intervals take charge of the recitation. *II.; M., Tu., W., Th.; 3; (5).* Professor Barton.

10. Advanced Latin Prose Composition.—Intended especially for students fitting themselves for teaching. *I.; M., W., F.; 7; (3).* Professor Barton.

LAW

1. Contracts.—Text-book, *Keener's Cases on Contracts. I.; M., W., Th.; (3). II.; M., W., F.; 3; (3).* Professor Pickett.

2. Torts.—Text-book, *Ames and Smith's Cases on Torts. I.; Tu., Th., F.; 4; (3). II.; M., W., F.; 2; (3).* Professor Drew.

3. Real Property.—Text-book, *Gray's Cases on Property. I.; F.; 3; W.; 4; (2). II.; Tu.; 3; W.; 4; (2).* Professor Drew.

4. Common Law Pleading.—Text-book, *Perry's Common Law Pleading. I.; M.; 4; (1). II.; Tu., Th.; 2; (2).* Professor Drew.

5. Criminal Law.—Text-book, *Beale's Cases on Criminal Law. I.; M., W., F.; 2; (3).* Professor Hughes.

6. Personal Property.—Text-book, *Gray's Cases on Property. I.; Tu.; 3; (1).* Professor Pickett.

7. Domestic Relations.—Text-book, *Smith's Cases on Law of Persons. II.; Tu., Th.; 4; (2).* Professor Tooke.

8. Evidence.—Text-book, *Thayer's Cases on Evidence. I.; Tu., Th.; 2; (2). II.; Tu., Th.; 2 (2).* Professor Hughes.

9. Sales.—Text-book, *Williston's Cases on Sales. I.; M. W., F.; 4; (3).* Professor Pickett.

10. Real Property.—Text-book, *Gray's Cases on Property. I.; M., W.; 3; (2). II.; W., F.; 3;(2).* Professor Scott.

11. Agency.—Text-book, *Wambaugh's Cases on Agency. I.; M., W.; 2; (2). II.; M., Tu.; 3; (1).* Professor Drew.

12. Equity.—Text-book, *Adams' Equity. I.; Tu., Th.; 3; (2). II.; M., Th.; 3; (2).* Professor Scott.

13. Damages.—Text-book, *Beale's Cases on Damages. I.; Tu., Th.; 4; (2).* Professor Tooke.

14. Bailments and Carriers.—Text-book, *McClain's Cases on Carriers. II.; M., W., F.; 4; (3).* Professor Pickett.

15. Bills and Notes.—Text-book, *Huffcutt's Negotiable Instruments. II.; M., W., F.; 2; (3).* Professor Hughes.

16. Trusts.—Text-book, *Ames' Cases on Trusts. I.; Tu., Th.; 2; (2).* Professor Drew.

17. Corporations.—Text-book, *Smith's Cases on Private Corporations. I.; M., W.; 3; (2). II.; W., F.; 1; (2).* Professor Hughes.

18. Wills and Administration.—Text-book, *Gray's Cases on Property. I.; M., W., F.; 2; (3).* Professor Tooke.

19. Partnership.—Text-book, *Ames' Cases on Partnership. I.; Tu., Th.; 3; (2).* Professor Hughes.

20. Equity Pleading.—Text-book, *Langdell's Summary of Equity Pleading. II.; Tu., Th.; 3; (2).* Professor Pickett.

21. Suretyship and Mortgage.—Text-book, *Ames' Cases on Suretyship. II.; M., F.; 3; (2).* Professor Drew.

22. Constitutional Law.—Text-book, *Boyd's Cases on Constitutional Law. I.; M., F.; 4; (2). II.; M., F.; 4; (2).* Professor Scott.

23. International Law.—Text-book, *Snow's Cases on International Law. I.; Tu., Th.; 4; (2). II.; Tu., Th.; 4; (2).* Professor Scott.

24. Municipal Corporations.—Text-book, *Smith's Cases on Municipal Corporations. II.; M., W.; 2 (2).* Professor Tooke.

25. Practical Conveyancing.—Text-book, *Illinois Statutes. I.; F.; 3; (1). II.; Th.; 2; (1).* Professor Pickett.

26. Moot Court.—*I.; F.; 2-5 p. m. II.; F.; 2-5 p. m.* Mr. Justice Harker.

LIBRARY SCIENCE

1. Elementary Library Economy.—Instruction begins with the selection of books and the placing of an order, and follows the regular library routine.

The work of the order department is taught by lectures and practice. American, English, French, and German trade bibliography is introduced. Instruction in the accession department is according to Dewey's Library School Rules. Lectures are given upon duplicates, exchanges, gifts, importing, copyright, and allied topics.

The Dewey decimal classification is taught by classifying books. In the shelf department Dewey's Library School Rules is used and supplemented with lectures. Sample shelf-lists are made with both sheets and cards.

Cataloging is taught according to Dewey's Library School Rules and Cutter's Rules for a Dictionary Catalogue. After each lecture students are required to catalog independently a number of books. The class is taught to modify the rules to suit different types of libraries. Lectures are given on forms of card catalogs and mechanical accessories. Library handwriting is practiced in connection with all the work.

Instruction is given on loan systems and on binding and repair work. A comparative study of Chicago libraries is made in the second semester, when the students have become familiar with library methods.

Single lectures are given on library associations, library schools, library commissions, traveling libraries, home libraries, library economy publications, government and service, library legislation, regulations for readers, library architecture, libraries and schools, and other general subjects, to acquaint students with current general library topics. *I.; daily; 2; (10). II.; daily; 2; (4).* Professor SHARP and Miss MANN.

2. ELEMENTARY REFERENCE.—Lectures are given on reference books considered in groups, such as indexes, dictionaries, encyclopædias, atlases, hand-books of history, hand-books of general information, quotations, statistics, etc. Reference lists are prepared for special classes and for literary societies, and the students have practical work in the reference department of the library. *I. and II.; Tu.; 1; (2 each semester).* Assistant Professor STRAIGHT.

3. SELECTION OF BOOKS.—Study is based upon the Publisher's Weekly. Each student checks desired books each week, examines them, if possible, and studies reviews in order to make a final choice of five or ten books each month. These books are carefully reviewed in class with regard to author, subject, edition, and series. Especially interesting publications, and current library topics, are called to the attention of the students at this time. This course continues through two years. *I. and II.; F.; 1; (1 each semester).* Assistant Professor STRAIGHT.

4. ELEMENTARY APPRENTICE WORK.—The purpose of this work is to familiarize the students with the minor work of a library and to acquaint them with the books in the University library. Each student is given practical work in the mechanical preparation of books for the shelves, and in the copying of minor library records assigned as practice in library handwriting.

The care of the books in the stacks including the reading of shelves is assigned to the students, who are thus brought in contact with the books. Upon the completion of a class study, practical work upon this study is assigned to such students as are capable of doing independent work. The work is all done under the direction of an instructor. *I.; daily; 3; (2). II.; daily; 2; (8).* Miss MANN.

Required: Library 1, 2.

5. ADVANCED LIBRARY ECONOMY.—In a comparative study of classification are discussed the systems of Dewey, Cutter, Edwards,

Fletcher, Perkins, Smith, and Schwartz. A comparative study of cataloging considers the rules of British Museum, Jewett, Library Association of the United Kingdom, Bodleian Library, American Library Association, Wheatley, Perkins, Cutter, and Dewey. Students revise junior cataloging as a review, and catalog new books for the library. Problems are given in buying supplies, in organizing and reorganizing libraries, in preparing printed finding-lists, in forming rules and regulations, and in devising loan systems. The class discusses questions affecting the founding and government of libraries, library legislation, library architecture, library administration, and current problems in public and college library work. *I. and II.; M., W.; 3; (3 each semester).* Professor SHARP and Miss MANN.

Required: Library 4.

6. BIBLIOGRAPHY.—Lectures on subject bibliography are given by professors at the University. Students are given many practical problems. *I. and II.; Tu.; 3; (1 each semester).* Professor SHARP.

7. HISTORY OF LIBRARIES.—Libraries are studied by types and by countries. Special attention is given to libraries in the United States, their reports being used as text-books. *I.; W.; 1; (2).* Assistant Professor STRAIGHT.

8. ADVANCED REFERENCE.—The course takes up public documents, transactions of societies, advanced reference books, and indexing. *I.; Th.; 1; (2); and II., first half; Th.; 1; (2).* Assistant Professor STRAIGHT.

Required: Library 1, 2.

9. BOOK-MAKING.—Lectures on the history of printing, printers' marks, book-plates, and the history and art of binding. *II., second half; W.; 1; (2).* Assistant Professor STRAIGHT.

10. ADVANCED APPRENTICE WORK.—This consists of independent technical work in the University library, and of public library work in connection with the libraries of Champaign and Urbana. *I. and II.; daily; 4; (5 each semester).* Miss MANN.

Required: Library 4.

11. THESIS.—Each student is required to prepare a thesis for graduation. This must be on some library topic, and must represent original research. An original bibliography, instead of a thesis, may be presented upon the approval of the director. *I.; arrange time; (1). II.; arrange time; (3).* Professor SHARP.

Required: Library 1-10.

12. GENERAL REFERENCE.—This course is offered to all students of the University who wish to become familiar with the ordinary

reference books. It will comprise lectures on the catalog, classification, the reference-room, the reading-room, and groups of books, such as indexes, dictionaries, encyclopædias, atlases, handbooks of general information, handbooks of history, statistics, quotations, etc. *I.; arrange time; (1).* Professor SHARP.

MATHEMATICS

1. ADVANCED ALGEBRA.—For students in courses requiring spherical trigonometry. This course presupposes a thorough knowledge of elementary algebra through simultaneous quadratics and proportion. Students, who for any reason have not had this elementary work recently, would find it to their advantage to review it thoroughly before commencing this course. The work will cover the following topics: Progressions, indeterminate equations, binomial theorems for fractional and negative exponents, undetermined coefficients, decompositions of fractions, theory of limits, convergency and divergency of series, reversion of series, summation of series, logarithms, continued fractions, permutations and combinations, probability, and the loci of equations. *I.; Tu., Th.; section A, 2; section B, 4; (2).* Mr. COAR.

2. ADVANCED ALGEBRA.—For students in courses not requiring spherical trigonometry, to be taken with course 4. This course will cover all the work given in course 1, and in addition will include a short introduction to the general theory of equations, with applications to the solution of numerical equations. *I.; M., W., F.; section A, 1; section B, 2; section C, 3; section D, 4; section E, 6; (3).* Associate Professor TOWNSEND, Mr. MILNE, Mr. COAR, Mr. SHORT.

3. PLANE AND SPHERICAL TRIGONOMETRY.—This course covers the same ground in plane trigonometry as course 4. In addition to the work outlined there, about two-fifths of the term will be given to developing the general principles and applications of spherical trigonometry. *I.; M., W., F.; section A, 2; section B, 4; (3).* Mr. COAR.

Required: Solid and Spherical Geometry.

4. PLANE TRIGONOMETRY.—The following topics will be taken up, viz.: Measurements of angles, trigonometric functions and their fundamental relations, functions of the sum and the difference of two angles, functions of twice an angle and of half an angle, the construction and use of logarithmic tables, solution of trigonometric equations, the relations between the sides of a triangle and the functions of its angles, the solution of triangles, Demoiyre's theorem and trigonometric series. It is intended that this course shall be

taken with course 2 in advanced algebra. *I.; Tu., Th.; section A, 1; section B, 2; section C, 3; section D, 4; section E, 6; (2).* Associate Professor TOWNSEND, Mr. MILNE, Mr. COAR, and Mr. SHORT.

6. ANALYTICAL GEOMETRY.—The aim is to acquaint the student with analytical methods of investigation and to familiarize him with some of the most recent developments in synthetic geometry; to make him more skillful in the use of algebraic processes, especially as a means of demonstrating geometric properties of loci. Subjects considered are the elementary theory of the point and right line in a plane; use of abbreviated notation; elementary theory of the conic sections, their equations and properties developed analytically; poles and polars; synthetic geometry of the circle, and the discussion of the general equation of the second degree, and of some higher plane curves. The course will also include a discussion of the following subjects: Coördinate systems for a point in space, the locus in space of an equation of the first and second degree, planes and straight lines, quadratic surfaces. *Tanner and Allen's Analytic Geometry. II.; daily; section A, 1; section B, 3; section C, 6; (5).* Associate Professor TOWNSEND, Mr. MILNE, Mr. COAR, and Mr. SHORT.

Required: Mathematics 2, 4 or 1, 3.

7. DIFFERENTIAL CALCULUS.—Variables and functions; limits and infinitesimals; differentials and derivatives; differentiation of explicit functions, implicit functions, and functions of several variables; derivatives of higher orders; successive derivatives, developments in series; maxima and minima of functions; indeterminate forms; plane curves, tangents, and normals; asymptotes, singular points, and curve tracing; theory of envelopes, of curvature, of evolutes, and of involutes. *Byerly's Differential Calculus. I.; daily; section A, 1; section B, 2; section C, 4; (5).* Professor SHATTUCK and Mr. SHORT.

Required: Mathematics 6.

9. INTEGRAL CALCULUS.—Elementary forms of integrations; integrals immediately reducible to the elementary forms; integration by rational transformations; integration of irrational algebraic differentials; integration of transcendent functions; definite integrals; successive integration; differentiation under the sign of integration; integration by means of differentiating known integrals; double integrals; triple and multiple integrals; product of two definite integrals.

Rectification and quadrature; the parabola, the ellipse, the cycloid, the Archimedean spiral, the logarithmic spiral, the limniscate,

the cycloid, quadrature of surfaces of revolution and of surfaces in general; cubature of volumes; the sphere, the pyramid, the ellipsoid, any solid of revolution, and of volumes in general. *Byerly's Integral Calculus. II.; daily; section A, 1; section B, 2; section C, 4; (5).* Professor SHATTUCK and Mr. SHORT.

Required: Mathematics 7.

10. THEORY OF EQUATIONS.—The development of the general properties of equations; relations of the roots and the coefficients of an equation, with applications to symmetric functions; transformation of equations; solution of reciprocal and binomial equations; algebraic solution of cubics and biquadratics; properties of derived functions; the limits and separation of the roots of equations; the solution of numerical equations of the nth degree. *Burnside and Panton's Theory of Equations. I.; M., W., F.; 1; (3).* Associate Professor TOWNSEND and Mr. COAR.

Required: Mathematics 2, 4 or 1, 3.

11. THEORY OF DETERMINANTS.—The origin and notation of determinants, properties of determinants, determinant minors, multipication of determinants, determinants of compound systems, determinants of special forms—Jacobians, Hessians, Wronskians—with applications to algebra, including linear transformations, and to analytic geometry. *Hanus's Theory of Determinants,* supplemented by lectures. *I.; Tu., Th.; 1; (2).* Associate Professor TOWNSEND and Mr. COAR.

Required: Mathematics 7, 10.

12. THEORY OF INVARIANTS.—The course will cover the general development of the theory of invariants, both from the geometric and from the algebraic side. Applications of invariants will be made to systems of conics and to higher plane curves. Lectures with collateral reading. Associate Professor TOWNSEND.

Required: Mathematics 11.

13. THEORY OF FUNCTIONS.—By way of introduction, considerable attention will be given to the geometric representation of the complex variable, including Argand's diagram, conformal representation, and harmonic ratios, and bilinear transformation. This will be followed by the development of the theory of infinite series, algebraic and transcendental functions, integration of uniform functions, Riemann's surfaces, introduction to elliptic functions, etc. *Durege's Theory of Functions and Collateral Reading. I. and II.; M., W., F.; 3; (3).* Associate Professor TOWNSEND and Mr. COAR.

Required: Mathematics 7, 9, 10.

14. METHOD OF LEAST SQUARES.—The object of this course is to present the fundamental principles of the subject in a manner so plain as to render them intelligible and useful to students of astronomy and engineering. The following subjects will be studied: Law of probability and error, adjustment of observations, precision of observations, independent and conditioned observations, etc. *Merriman's Least Squares. I.; M., W., F.; 4; (1½).* Mr. BRENKE.

Required: Mathematics 9.

15. SEMINARY AND THESIS.—*I. and II.; Tu., Th.; 3; (2).* Associate Professor TOWNSEND and Mr. COAR.

16. DIFFERENTIAL EQUATIONS.—This subject is designed for students in the courses of engineering and of mathematics and astronomy. It will embrace the following topics: General linear equations with constant coefficients, special forms of differential equations of higher order, integration in series, etc. *Johnson's Differential Equations. II.; M., W., F.; 4; (3).* Professor SHATTUCK and Professor MYERS.

Required: Mathematics 9.

17. ANALYTICAL GEOMETRY OF SPACE.—A general review will be given of the position of the plane and the right line in space and the more general properties of surfaces of the second degree. To this will be added the classification and special properties of quadrics, and a brief introduction to the theory of surfaces in general. *Chas. Smith's Solid Geometry. II.; M., W., F.; 1; (3).* Associate Professor TOWNSEND and Mr. COAR.

Required: Mathematics 9.

18. HIGHER PLANE CURVES.—This course is designed to cover the general theory of algebraic curves, together with the application of the theory of invariants to higher plane curves. Special study will be made of curves of the third and fourth order. *Lectures with collateral reading.* Associate Professor TOWNSEND.

Required: Mathematics 12.

20. CALCULUS OF VARIATIONS.—This course has for its aim merely to acquaint the student with those elements of the science which are most needed in the study of the higher subjects of mathematical astronomy and physics. *Carll's Calculus of Variations. I.; M., W., F.; 4; (1½).* Professor SHATTUCK.

Required: Mathematics 11, 16.

21. SPHERICAL HARMONICS.—In this course, a thorough study is made of so much of this subject as is of interest to an astronomer. It is introduced by a short course of lectures and study of certain

trigonometric series. Fourier's Theorem for developing any function of a variable in a series proceeding in sines and cosines of multiples of the variable is derived and the limitations of its validity investigated. This is followed by the study of Lagrange's, Laplace's and Lamé's functions and their applications to astronomical and physical problems. *Byerly's Fourier's Series and Spherical Harmonics. I.; M., W., F.; 7; (3).* Professor MYERS.

Required: Mathematics 11, 14, 16.

22. POTENTIAL FUNCTION.—The potential function is defined and its properties derived and discussed. The potential of various bodies, such as of a wire, a spherical shell, a sphere, ellipsoid of revolution, etc., is computed. Poisson's and Laplace's Equations are derived and discussed. Green's Propositions with kindred and similar subjects are handled. *Pierce's Newtonian Potential Function.—II.; M., W., F.; 7; (3).* Professor MYERS.

Required: Mathematics 21.

23. MODERN GEOMETRY.—This course will include in general a consideration of homogeneous coördinates, duality, descriptive and metrical properties of curves, anharmonic ratios, homography, involution, projection theory of correspondence, etc. *Scott's Modern Analytic Geometry.* Associate Professor TOWNSEND.

Required: Mathematics 8, 11.

24. ALGEBRAIC SURFACES.—In this course will be considered the application of homogeneous coördinates and the theory of invariants to geometry of three dimensions, and also the general theory of surfaces, together with the special properties of surfaces of the third and fourth order. *Lectures with collateral reading.* Associate Professor TOWNSEND.

Required: Mathematics 17, 18.

25. PARTIAL DIFFERENTIAL EQUATIONS.—This course may be taken either simultaneously with, or subsequently to, Math. 16. It deals with the integration and determination of the integration constants of such partial differential equations as arise in the study of such subjects as the flow of heat, the vibration of strings, plates, etc., and electricity. *II.; Tu., Th.; 5; (2).* Professor SHATTUCK and Professor MYERS.

Required: Mathematics 9.

26. STATISTICAL ADJUSTMENTS.—This course is intended for students whose work requires the handling of a mass of data, statistical or observed, which is vitiated by the presence of accidental errors, in such way as to elicit the content of truth on sound mathematical principles. It is thought the course will be particularly useful to

students of economics and of the observational sciences. *I.; Tu., Th.; 6; (2).* Professor MYERS. [Not given in 1900-1901.]

Required: Mathematics 7.

MECHANICAL ENGINEERING

1. SHOP PRACTICE.—In the shops the work, as far as possible, is carried along the same lines as in our leading commercial shops. The exercises are, in general, chosen from parts of machines under construction, and carefully graded to the skill of the student. Beginning with the care and use of the tools with which he is to work, the student is carried through the various operations of machine-shop practice. Following is an outline of the work, that of the two semesters being subject to transposition.

(a) First Semester, Wood Shop.—Primary exercises relating to the care and use of tools and a series of exercises preparatory to pattern making in joint work and turning.

Pattern and core box making with special reference to molding.

Second Semester (b) Foundry and (c) Forge Shop.—One-half of this semester is devoted to instruction in the management of the cupola and molding, including the making of green and dry sand cores. One-half of the semester is devoted to instruction in forging and welding iron and steel. Special attention is given to tempering of lathe and planer tools, also to case-hardening and annealing. *I. and II.; daily; section A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (3½).* Mr. CURTISS, Mr. WILSON, and Mr. JONES.

2. SHOP PRACTICE.—First Semester. Instruction in chipping, filing, and elementary machine work. Lectures.

Second Semester.—Instruction in the various operations of lathe, screw machine, planer, drill press, shaper, grinding machine, milling machine, boring mill, as well as fitting and bench work. Lectures. *I. and II.; daily; 6, 7, and 8 (divides time with M. E. 4); (2½).* Mr. CLARK.

3. POWER MEASUREMENTS.—This is the beginning of the work in the mechanical engineering laboratory, and is intended for students taking the mechanical engineering course. A study is made of the use and construction of the steam engine indicator. The measurement of power developed by the steam engine under different conditions is made a prominent part of the work. The method of applying friction brakes and measuring transmitted power is also taken up. *I. and II.; Tu., Th., 6, 7, and 8; S., 1, 2, 3; (2).* Mr. OLIVER.

Required: Mechanical Engineering 1, 2; Math. 9.

4. Elements of Machine Design.—The basis of this work is found in *Klein's Elements of Machine Design.* A series of plates 26x40 inches is constructed, covering a wide range of machine parts. By means of a large number of practical examples, sufficient drill is obtained in using rational and empirical formulas to enable the student to make the calculations required when designing various parts of machines. Theoretical and practical problems relating to gearing are taken up and worked out in detail. Instruction in blue printing and duplicating is included in the course. For description see Chem. 22c, p. 198. *Kent's Mechanical Engineer's Pocket-book; also Unwin's Machine Design. I. and II.; daily; 6, 7, and 8 (divides time with M.E. 2); (2½).* Mr. Randall.

Required: General Engineering Drawing 1, 2.

5. Mechanism.—This course includes a study of plane motion, following the methods of Reuleaux, and a study of the nature and equivalence of mechanisms. Determination of instantaneous centers and centrodes. Determination of velocities of important points of familiar mechanisms. Construction of acceleration diagrams. The transmission of motion in mechanisms by gearing, cams, links, etc. Trains of mechanism, analysis of difficult mechanisms. Particular attention is paid to problems relating to motions of gearing, steam-engine mechanisms, parallel motions of indicators, governors, link motions, valve gears, and indicator riggings. *I.; M., W., F.; 3 and 4; (3).* Mr. Randall.

6. Heat Engines.—The application of the theory of thermodynamics to gas and gasoline engines and hot air engines. A study of the modern forms of heat engines. Lectures and assigned readings. *I.; Tu., Th.; 1; (2).* Professor Breckenridge.

Required: Theoretical and Applied Mechanics 1; Physics 1, 3; Mechanical Engineering 7.

7. Thermodynamics.—The fundamental principles underlying the transformation of heat into work, more especially as exemplified in the steam engine, are carefully studied. Considerable attention is paid to the solution of numerous examples, such as will arise in steam, air, or gas engineering. Drill is given in the rapid and accurate use of standard steam tables. *I.; M., W., F.; 1; (3).* Assistant Professor Goodenough.

Required: Math. 9; Theoretical and Applied Mechanics 1; Physics 1, 3.

8. Mechanics of Machinery.—This is a study of the theoretical principles involved in the construction of hoisting apparatus,

pumping engines, air compressors, fans, blowers, machinery for transmitting power, locomotives, pile drivers, and other machinery of this character. *II.; Tu., W., Th.; 1; (3).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 5, 7, 14.

9. ADVANCED DESIGNING.—The work in this course comes under two heads.

Original Design: This part of the course is intended more especially to develop and train the student's inventive ability. The work begins with simple problems and extends to more difficult designs as the student progresses. The machines are to be designed for accomplishing a certain prescribed work. Often but a single piece is handed the student, and a machine is required which will produce a given number of these pieces per hour.

Advanced Design: This includes primarily the design of heavy machinery, such as punches, shears, presses, cranes, derricks, etc. Machinery subjected to heavy and variable stresses. The design of attachments to existing machines, or the complete design of some machine that can be built in the shops, is often a part of this work.

A large amount of study of existing machines is required. The student is taught to consult the standard works on designing, such as *Unwin, Reuleaux, Klein, Bach's Maschinenelemente, and Richards. I.; Tu., Th.; 6, 7, 8; (2). II.; Tu., W., Th.; 6, 7, 8; (3).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 8, and 14.

10. ESTIMATES, SPECIFICATIONS, AND SUPERINTENDENCE.—Calculations and estimates are made as to the cost of machinery, power plants, boilers, chimneys, systems of piping, engines and their foundations, different methods of power transmission.

Also forms of contracts and specifications are studied. *II.; Tu., Th.; 2, 3; (1).* Professor BRECKENRIDGE.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 6, 9, 12.

12. ADVANCED MECHANICAL ENGINEERING LABORATORY.—This work is a continuation of the work begun in the junior year. Experiments are made with engines, pumps, motors, injectors, and boilers to determine under what conditions they may be expected to give a maximum efficiency. Tests of plants in the vicinity are made, of which carefully prepared reports are always required. The dyna-

mometer car and the railway test car described under the equipment of the department gives unexcelled opportunities for experimental railway engineering. Advanced constructive work in the shops is assigned to groups of students, in order to impress upon them the intimate relation existing between the designing room and the shop. *Carpenter's Experimental Engineering. I.; M., F.; arrange time; (4). II.; F.; 1; (1).* Professor BRECKENRIDGE, Mr. SCHMIDT, and Mr. OLIVER.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 7, 14.

13. MECHANICAL ENGINEERING LABORATORY.—This is a laboratory course for students in other departments of the Engineering College. The student is taught to apply the indicator to different engines and to make the usual calculations of horse power and steam consumption as given by the diagrams. Correct forms of reducing motions are explained. The reading of indicator diagrams and valve setting are also taught. *Indicator Practice and Steam Engine Economy—F. F. Hemenway. II.; Th., F.; 6, 7, 8; (2).* Mr. OLIVER.

Required: Mechanical Engineering 1, 2; Math. 7, 9.

14. HIGH SPEED STEAM ENGINE AND VALVE GEARS.—In this course the relations between piston speed, expansion, and quiet running are carefully studied. The student is given the problem of designing an engine that will develop a prescribed maximum and minimum horse power and run smoothly at all loads within its range. Each part of a complete engine is designed, and detailed drawings made and traced, so that each member of the class may have a complete set of blue prints.

The application of graphical diagrams as an aid in the study and design of valves for steam distribution in the engine cylinder is carefully brought out. Determination of the dimensions of steam passages, single valve gears, double valve gears, equalization of steam distribution, application of diagrams to existing types of engines. A critical study of the shaft governor. *Klein's High Speed Steam Engine. I.; Tu., W., Th.; 2, 3, 4; (3).* Assistant Professor GOODENOUGH.

Required: Mechanical Engineering 1 to 7, 16, 17; Theoretical and Applied Mechanics 1, 2.

16. STEAM ENGINES.—A study of the details of steam engines. Elementary principles of transformation of heat into work. Laws of expansion of steam. The mechanics of the steam engine. Valves and valve gears. The indicator diagram, condensers, steam jackets,

super-heaters, and compound engines. *The Steam Engine, Holmes. I.; Tu., Th.; section A, 1; section B, 2; (2).* Mr. OLIVER.

Required: Physics 1, 3; Mathematics 9.

17. STEAM BOILERS.—Materials used in the construction of boilers. Proportions and strength of riveted joints. Incrustation, explosions, combustion, safety appliances, feed apparatus, boiler trials. *Peabody and Miller's Steam Boilers. II.; M.; section A, 1; section B, 2; (1).* Mr. RANDALL.

Required: Physics 1, 3; Mathematics 9.

18. GRAPHICAL STATICS OF MECHANISM.—Graphical determination of the forces acting at different points in machines used for hoisting, crushing, punching, and transmitting motion, taking into account the resistances offered to motion by frictional resistances. Effect of sliding, rolling, and journal friction, chain friction, tooth friction, stiffness of ropes and belts. Graphical determination of efficiencies. *Graphical Statics of Mechanism, Herrman-Smith. II.; W.; 2, 3, 4; (1).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1, 2; Mechanical Engineering 5.

19. SEMINARY.—Work supplementary to other studies of the senior year. Presentation of papers on assigned subjects. Contributed papers on current topics. Discussion and criticisms on new inventions. *I.; W.; 6 and 7. II.; M.; 6 and 7; (1).* Professor BRECKENRIDGE.

20. SHOP PRACTICE FOR SPECIAL STUDENTS.—This course is open to those entering as special students, as defined elsewhere under "Admission." The work will be arranged after consultation. The work done does not count for a credit for graduation in any of the technical courses. *Arrange time.* Mr. CLARK.

21. FORGE SHOP PRACTICE.—This course is designed for students taking the course in Agriculture. The work covers instruction in forging, such as will be of use to the practical farmer. The course may be started at the beginning or middle of either semester; section *A, 1 and 2; section B, 3 and 4; section C, 6 and 7; (2).* Mr. JONES.

COURSES FOR GRADUATES

Primary

101. Advanced Machine Design.
102. Graphics and Kinematics.
103. Mill Engineering.
104. Steam Engineering.

105. Experimental Engineering.
106. Thermodynamics.
107. Pneumatics.
108. Hydraulic Machinery.
109. Mechanical Technology.
110. Translation of Technical Engineering Work.
111. Heat Engines and Gas Engineering.
112. Locomotive Engineering.
113. Mechanical Refrigeration.

Secondary

120. Any primary offered in the College of Engineering. Primary subjects may be taken as secondary in any course for the master's degree in the College of Engineering.

121. Indexing and Classification of Engineering Literature.

MECHANICS, THEORETICAL AND APPLIED

1. Analytical Mechanics.—The mechanics of engineering, rather than that of astronomy and physics, is here considered. In addition to fixing the fundamental concepts and demonstrating the general principles of equilibrium and motion, application of principles and methods is made to numerous and varied engineering problems in such a way that the student must discriminate in the use of data and in the statement of conditions. As mathematical processes and forms express most readily and quickly the rules and methods for the solution of such problems, such training is given with special care. This subject requires a thorough working knowledge of the mathematics preceding it in the course. The methods of the calculus are used whenever preferable.

Outline of the subject: Nature and measure of force; composition and resolution of forces; moments; conditions of equilibrium; resultant of systems of forces; center of gravity; moment of inertia; rectilinear and curvilinear motion, and the relation between such motion and the constraining and accelerating forces; dynamics of a rigid body; momentum and impact; work, energy, and power; mechanical advantage. *Bowser's Analytical Mechanics. I., first 14 weeks; daily; section A, 1; section B, 2; (4).* Professor Talbot.

Required: Mathematics 9.

2a, b. Resistance of Materials.—In the treatment of this subject it is the aim to give the student a thorough training in the elementary principles of the mechanics of materials, to follow with

such experiments and investigations in the materials laboratory as tend to verify the experimental laws, and to add such problems in ordinary engineering practice as will train the student in the use of his knowledge. Attention is also given to the quality and requirements for structural materials.

Outline of the subject: Elasticity of materials; stresses and strains; experimental laws; working strength for different materials; resistance of pipes and riveted joints; bending and resisting moment, shear, and elastic curve of cantilever, simple, restrained, and continuous beams; column formulas; torsion and shafts; maximum internal stresses in beams; fatigue of metals; working strength for repeated stresses; resilience; reliability of the common theory of flexure, as shown by actual experiment; design and strength of rolled and built beams and columns; specifications for materials and methods of testing. *Merriman's Mechanics of Materials. I., last four weeks; daily; section A, 1; section B, 2. II., first 7 weeks; Tu., W., Th., F.; section A, 1; section B, 2; arrange for one laboratory period of two hours each week; (3).* Professor TALBOT.

Required: Math. 9; Theoretical and Applied Mechanics 1.

3. HYDRAULICS.—In hydraulics the instruction is by text-book and laboratory work. The laws of the pressure and the flow of water and its utilization as motive power are considered. Experimental work in the hydraulic laboratory gives training in the observation and measurement of pressure, velocity, and flow, and in the determination of experimental coefficients.

The subject covers the following: Weight and pressure of water; head; center of pressure; velocity and discharge through orifices, weirs, tubes, nozzles, pipes, conduits, canals, and rivers; measurement of pressure velocity, and discharge; meters and measurements; motors, turbines, and water wheels; water power and transmission of power. *Merriman's Hydraulics. II., last 11 weeks; Tu., W., Th., F.; section A, 1; section B, 2; arrange for one laboratory period of three hours each week; (3).* Professor TALBOT.

Required: Mathematics 9; Theoretical and Applied Mechanics 2.

4. APPLIED MECHANICS.—To be taken instead of Analytical Mechanics. The course of study and topics studied will be nearly identical. *Wright's Mechanics. I.; M., Tu., W., F.; 2; (4).* Assistant Professor MCLANE.

Required: Mathematics 6.

5. STRENGTH OF MATERIALS.—To be taken instead of Resistance of Materials. The course of study will be nearly the same, though

somewhat simplified. *Merriman's Mechanics of Materials. II.; Tu., F., 4; M., Th., 6; arrange for ten laboratory periods of two hours each; (4).* Assistant Professor McLane.

Required: Mathematics 6; Theoretical and Applied Mechanics 4.

COURSES FOR GRADUATES

101. Analytical Mechanics.
102. Resistance of Materials.
103. Hydraulics and Hydraulic Engineering.
104. Laboratory of Applied Mechanics.

MILITARY SCIENCE

1. Infantry Tactics.—For all male students. School of soldier; bayonet exercise; school of company, close and extended order. *I.; (1).* Professor Clark.

2. Drill Practice.—Company and battalion in close and extended order; school of the cannoneer and of the battery dismounted; target practice. Freshman and sophomore years. *I. and II.; (1).* Professor Clark.

3. Recitations and Practice for Officers and Non-Commissioned Officers.—*Sophomore year:* School of the battalion close and extended order; ceremonies; review and inspection; military signaling; guard, outpost, and picket duty. *Junior year:* Military administration; reports and returns; theory of firearms and target practice; organization of armies; field fortifications; art of war. This course is obligatory upon officers and non-commissioned officers, and open to others. Recitations one hour a week; drill two hours a week. Professor Clark.

MINERALOGY

1. Elements of Mineralogy.—(a) The first term's work is a general introduction to the subject. Instruction includes lectures and laboratory practice. In the lectures, which occur on specified days (2 or 3 each week), such subjects as follow are discussed: Genesis of minerals; conditions favoring their deposition; origin of the massive and crystalline forms; relationships of minerals and their classification; the physical properties of minerals, as color, luster, hardness, gravity, streak, etc., with the conditions which may cause these properties to vary; and the elements of crystallography, including a study of the typical whole, half, and quarter forms of each system, and their identification when in combination.

In the laboratory the student is first made acquainted with the simplest trustworthy methods for proving the presence or absence of the acids and bases. He is then required to determine a large number of species by their physical and chemical properties only.

(b) Petrography of Crystalline Rocks: The instruction under this topic is given by lectures and laboratory work. The subjects included are the classification of rocks, the methods used in their determination, the conditions governing the formation of each species, the decompositions to which they are liable, and the products of these decompositions. Each student is supplied with a set of blowpipe tools and reagents, and a series of hand specimens covering all the common species of rocks. The course is continued under Geology 1b. *I.; daily; 1 and 2; (5).* Professor ROLFE and Mr. HUBBARD.

Required: Chemistry 1.

2. ADVANCED MINERALOGY.—(a) Crystallographic Mineralogy. During the first part of the semester a mere detailed study of the forms of crystals and their combinations is made. The student is required to identify many species of minerals by measuring their angles with the contact or reflecting goniometer, and calculating their crystallographic constants.

(b) Optical Mineralogy. About eleven weeks are devoted to the microscopic determination of rock forming minerals. *II.; daily; 3 and 4; (5).* Professor ROLFE and Mr. HUBBARD.

Required: Mineralogy 1.

MUNICIPAL AND SANITARY ENGINEERING

1. ROAD ENGINEERING.—The value and importance of road improvement in country highways and the best means of securing it are considered, together with the principles and details of construction of earth, gravel, and macadam roads. In city streets, the methods of construction, cost, durability, and desirability of the various kinds of pavement, and the questions of grades, cross-sections, methods of assessment of cost, and methods of maintenance and cleaning are treated. *Byrne's Highway Construction. Lectures and Reading. II.; W.; 3; (1).* Professor BAKER.

Required: Math. 4; General Engineering Drawing 1, 2; Civil Engineering 1, 2, 3, 4.

2. WATER SUPPLY ENGINEERING.—This subject is intended to cover the principal features of the construction of water works, including the tests and standards of purity of potable water; the choice of source of supply; the designing of the distribution system,

pumps and pumping machinery, reservoirs, and stand-pipes. *Lectures; Folwell's Water Supply Engineering. I.; M., Tu., W., Th.; 4; arrange for drafting, 12 periods, M., 6, 7, and 8; (4).* Professor TALBOT.

Required: Theoretical and Applied Mechanics 1, 3; Chemistry 1; Mechanical Engineering 16.

3. SEWERAGE.—The design and methods of construction of sewerage systems of cities, including the following: Sanitary necessity of sewerage; water carriage systems, both separate and combined; surveys and general plans; hydraulics of sewers; relation of rainfall to storm water flow, and determination of size and capacity of sewers; house sewage and its removal; form, size, design, and construction of sewers and sewer appurtenances; modern methods of sewage disposal; estimates and specifications. *Lectures; Folwell's Sewerage. II.; M., W., F.; 3; arrange for drafting, 10 periods, M., 3, 4, and 5; (3).* Professor TALBOT.

Required: Theoretical and Applied Mechanics 1, 3; Chemistry 1.

5a. BACTERIOLOGY.—For students in Municipal Engineering. This course includes the identification and classification of bacteria, and of allied organisms, their relations to health and to disease, the methods of separation and cultivation, and the methods of air and water analysis. The laboratory is furnished with sterilizers, culture ovens, microscopes, etc., and students have abundant opportunity to do practical work. This course follows civil engineering 4a. *I., last 7 weeks; daily; 6 and 7; (2).* Professor BURRILL.

6. WATER PURIFICATION, SEWAGE DISPOSAL, AND GENERAL SANITATION.—This work includes the consideration of impurities in water supplies and the study of the methods and processes of their removal; the modern methods of sewage disposal by filtration, chemical precipitation, irrigation, etc., with a study of representative purification plants; garbage collection and disposal; sanitary restrictions and regulations and general sanitation. Lectures and seminary work. *II.; daily 4; (5).* Professor TALBOT.

Required: Municipal and Sanitary Engineering 2, 3, 5a; Chemistry 1, 3a.

COURSES FOR GRADUATES

Water Supply Engineering

101. Tanks, Stand-Pipes, and Reservoirs.

102. Sources and Requirements of Water Supply for a City and Removal of Impurities.

103. Water Works Management and Economics.
104. Pumps and Pumping.
105. General Water Works Construction.
106. Biological and Chemical Examination of Potable Water.
107. Description of Water Supply Systems.

Sewerage

111. Sewage Purification.
112. Sewage Disposal Works.
113. General Sewerage Design and Construction.
114. City Sanitation.
115. Description of Sewerage Systems.

Road Engineering

118. Economic Aspect of Good Roads and Pavements.
119. Construction of Roads and Pavements.

Miscellaneous Subjects

121. Critical Description of Engineering Construction.
122. Translation of Technical Engineering Work from French or German.
123. Any Primary in Civil Engineering.
124. Any Primary in Theoretical and Applied Mechanics.
125. Any Primary in Mathematics, Mechanical Engineering, or Electrical Engineering—Secondary.
126. Indexing of Municipal and Sanitary Engineering Literature in Engineering Periodicals.

MUSIC

Course 1 will be counted for credit toward the regular degree for students in the College of Literature and Arts, provided they are at the same time enrolled *in the School of Music.* Courses 7 and 8 are counted for credit for all students who take them.

1. History of Music.—Lectures on the development of music from its beginning among the Greeks to the present day, including the rise of dramatic music, the origin and progress of the oratorio, the evolution and development of instrumental forms, and studies in the lives of the composers. Assigned collateral readings. *I. and II.; arrange time; (3).* Mr. Wylie.

2. Theory of Music.—a. A course in harmony, two hours a week, in class, through three semesters. *Emery's Harmony* with additional exercises. *Weitzman's Theory of Music. (13 in all.)*

b. A course in counterpoint, two hours a week in class through one semester. *Richter's Counterpoint. (3.)*

c. A course in fugue, two hours a week in class through one semester. *Richter's Fugue. (3.)*

d. A course in musical analysis which may be taken at the same time with the studies in counterpoint and fugue. The second, third, and fourth parts of this course are open only to advanced students showing special aptitude. *(3.)* Mr. WYLIE.

3. COURSE FOR THE PIANO.—(a) *Preparatory.* This course is equivalent to three years' work. It includes formation and position of fingers, hands, wrists, and arms, properties of touch, principles of technique, thorough drill in scale and arpeggio playing, and exercises in accent, rhythm, and expression. Music used: Herz, Scales and Exercises; Loeschhorn, Op. 65, 66; Lemoine, Op. 37; Heller, Op. 45; Bertini, Op. 29, 32; Czerny, Op. 299, Bks. 1, 2; Bach's Little Preludes; also sonatinas and easier sonatas and compositions by Clementi, Kuhlau, Haydn, Mozart, Mendelssohn, Merkel, Dussek, Diabelli, Grieg, Bargiel, and others. Miss FOX.

(b) *Collegiate.* First year. Studies in development of technique: Czerny, Op. 299, Bks. 3, 4; Czerny, Octave Studies; Cramer, Etudes; Jensen, Etudes; Bach, Two-Voice Inventions and French Suites; sonatas of Haydn and Mozart; easier Sonatas of Beethoven; Songs Without Words, Mendelssohn; compositions (smaller works) of Beethoven, Chopin, Schubert, Raff, Grieg, Chaminade, Moszkowski, and others. *(10 in all.)* Professor JONES and Miss FOX.

Second Year. Daily technique; Czerny, Op. 740; Bach, Three-Voice Inventions and English suites; sonatas and other compositions of Scarlatti, Beethoven, Schubert, Schumann, Mendelssohn, Weber, Raff, Rubinstein, Saint Saens, Godard, MacDowell, and others. *(13 in all).* Professor JONES and Miss FOX.

Third Year. Selections: Clementi, Gradus ad Parnassum; Moscheles, Op. 70; Kullak, Seven-Octave Studies, Bk. 2; Bach, Well-Tempered Clavichord; sonatas and concertos by Mendelssohn, Weber, Beethoven, Hummel, Brahms, etc.; selections from works of Bach, Chopin, Schubert, Schumann, Brassin, Rubinstein, Liszt, Moszkowski, Scharwenka, and other modern composers. *(17 in all.)* Professor JONES.

Fourth Year. Selections: Octave Studies; Clementi, Gradus, continued; Bach, Well-Tempered Clavichord, continued; Chopin, Etudes; Henselt, Etudes; Rubinstein, Etudes; sonatas by Beethoven, and concertos and other compositions by the great masters, classic

and romantic, both of the older and the more modern schools. *(17 in all.)* Professor Jones.

4. a and b. Course for the Organ.—Similar preparatory and collegiate courses for the organ will be offered for any one caring to make this the principal instrument. Professor Jones.

5. Course for the Voice.—(a) *Preparatory.* The placing of the voice and proper position of the mouth and throat. Randegger's Singing. The first fifteen of the Fifty Conçone Studies. Simple songs for rhythm, accent, and proper pronunciation of words.

(b) *Collegiate.* First Year: Voice production, Randegger's Singing continued. All the Fifty Conçone Studies. Songs of Mendelssohn, Schubert, and those of good modern composers. *(10 in all.)*

Second Year: Voice production. Viardot-Garcia's Hour of Study. Book I for technical work. Twenty-five and Fifteen Conçone Studies for soprano and tenor and the Forty Conçone for alto and bass. Songs of German, French, and English composers, and simple selections from operas and oratorios. *(13 in all.)*

Third Year: Voice production. Viardot-Garcia's Hour of Study, Book II. Bordigni's Thirty-six Studies for soprano or tenor, its equivalent, Sieber or Bordese for alto or bass. Selections from oratorios and from French, German, and Italian operas. Songs of considerable difficulty by German, English, French, and Italian composers. *(17 in all.)*

Fourth Year: Voice production. The Twenty-four Panoflra Studies. Lütgen's Operavocalisen, Book II. Italian, French, German, and English songs of all standard composers. Solos and concerted work from the modern as well as the standard operas and oratorios. *(17 in all.)* Miss Fernie.

6. Course for the Violin.—(a) *Preparatory.* Violin methods by Hermann, Kayser, Sitt, Mazas, etc. Schradieck's Technical Studies. Etudes by DeBeriot, Murts. Easy solos.

(b) *Collegiate.* First Year: Etudes by Kreutzer, Mazas, Fiorillo, etc. Concertos by Viotti, Rode, Kreutzer, DeBeriot. Sonatas by Mozart, Beethoven, Handel, Gade. *(10 in all.)*

Second Year: Etudes by Rode, Gavinies and Campagnoli. Concertos by Spohr, Bruch, Vieuxtemps, Molique, etc. Sonatas by Beethoven and Grieg. *(13 in all.)*

Third Year: Caprices by Paganini. Concertos by Bruch, Mendelssohn, Saint Saens, Joachim. Ensemble work. *(17 in all.)*

Fourth Year: Bach sonatas. Concertos by Beethoven, Bruch, Brahms, Tschaikowsky, Dvorak, Saint Saens. Ensemble work. *(17 in all.)* Mr. WYLIE.

7. University Orchestra. *Two hours' rehearsal once a week throughout the year. (2.)* Mr. WYLIE.

8. University Choral Society. *One hour rehearsal once a week throughout the year. (1.)* Miss FERNIE.

PALEONTOLOGY

1. ADVANCED PALEONTOLOGY.—The work outlined under geology 1d (p. 215) can do little more than introduce the general subject. To those who desire a better acquaintance with paleontology a course of one or two semesters is offered.

This course includes: (a) Discussion of the biological relations to fossil forms along the lines indicated in Williams' Geological Biology; (b) a discussion of the principles of classification as applied to fossils, together with the characteristics which distinguish the larger groups, using Nicholson, Bernard, and Zittel as guides; (c) a study of the distribution and variations of the genera and species of one or more of the important groups as illustrated by the collections of the University, using the various state reports and Miller's Handbook as aids. Ten hours per week. A major in botany and zoölogy would aid the student greatly in this work, but neither is required. See under mineralogy and geology. *I. and II.; daily; 3 and 4; (5 each semester).* Professor ROLFE and Mr. HUBBARD.

Required: Geology 1.

PEDAGOGY

1. HISTORY OF EDUCATION.—From the earliest times to the reformation. The development of educational theory and practice in their relation to the history of civilization among the ancient peoples. The educational problems of the earliest culture nations. The old and the later Greek education. Ideals and methods at Rome. The early Christian schools. The significance of scholasticism. The influence of the Jesuits and the Jansenists. The growth of the universities. Lectures, assigned reading, essays, and discussions. *I.; M., W., F.; 6; (3).* Professor DEXTER.

Required: Two years of University work.

2. HISTORY OF EDUCATION.—Since the reformation. A continuation of Course 1. A consideration of the influence of Luther, Erasmus, Milton, Locke, Comenius, Sturm, Rousseau, Pestalozzi, Froe-

bel, Herbart, Spencer, and Horace Mann. *II.; M., W., F.; 6; (3).* Professor DEXTER.

Required: Pedagogy 1.

3. PRINCIPLES OF PEDAGOGY.—The basis for a scientific theory of education critically considered from the standpoint of the individual in his relation to the mass. The developing powers of the child are here studied in their bearing upon social efficiency. The more general problems of Genetic Psychology are considered, as well as those essential to the theory and art of teaching. Lectures, essays, and discussions. *I. and II.; M., W., F.; 2; (3).* Professor DEXTER.

Required: Two years of University work.

4. PRINCIPLES OF PEDAGOGY.—A continuation of Course 3. The problems of school education. The making of a course of study. Inter-relation of school studies. Method in teaching. The recitation. Examinations. Grading and promotion. The various branches, considered as school subjects. *II.; M., W., F.; 7; (3).* Professor DEXTER.

Required: Pedagogy 3.

5. THE GROWTH OF EDUCATIONAL SYSTEMS IN THE UNITED STATES.—A historical study of the development of the present school system in our own country. Beginning with the earliest attempts at private and public schools in the colonies, the movements are traced to the present time. Special time is given to the study of secondary school growth. *I.; Tu., Th.; 6; (2).* Professor DEXTER.

Required: Two years of University work.

6. CONTEMPORARY EDUCATIONAL CONDITIONS AND MOVEMENTS IN THE UNITED STATES.—In this course are studied critically the educational tendencies of to-day. Besides the broader meaning of the whole movement, the school systems of our larger cities and towns are carefully studied. *II.; Tu., Th.; 6; (2).* Professor DEXTER.

Required: Pedagogy 1, 3 or 5.

7. A COMPARATIVE STUDY OF THE SECONDARY SCHOOLS OF FRANCE, GERMANY, ENGLAND, AND AMERICA.—In this course are considered the French Lycées, the German Gymnasia, the English Board, Public, and Church Schools, and the American Academies and High Schools. Their resemblances and differences are carefully noted, as well as the conditions which have led up to each. *II.; Tu., Th.; 2; (2).* Professor DEXTER.

8. HIGH SCHOOL THEORY AND PRACTICE.—A critical study of High School Courses as carried on in our country, together with the

method of presentation of the various subjects. *I. and II.; Tu., Th.; 7; (2).* Assistant Professor Brooks.

9. Seminar in Education.—The subject for 1900-1901 is *School Supervision.* The problems of the modern city superintendent from both the educational and business standpoints will be considered. Special attention is given to the problems of school architecture and sanitation. Discussions, reports, and lectures by those actively engaged in the work of superintendency. *I. and II.; arrange time; (1).* Professor Dexter and Assistant Professor Brooks.

COURSES FOR GRADUATES

In these there is sufficient elasticity to meet the wants of individual students. Advanced work is offered in the history and in the philosophy of education, in which original sources are consulted and special periods critically studied. Experimental and statistical problems in education and child study are also directed. Candidates for advanced degrees are expected to present theses representing original work of merit, ready for publication.

PHILOSOPHY

1. Logic.—For the required credit in philosophy, students may select either of the following courses:

a. This course considers the nature of judgment and inference. Emphasis is laid upon practice in division, definition, forms of syllogism, deductive and inductive fallacies. This course is recommended to students who are interested in psychology or philosophy. *I.; M., W., F.; 2; (3).*

b. Special attention is given to fallacies and to the problems, grounds, and principles of induction. The study is designed not only to direct the student in practical reasoning and correct thinking, but also to familiarize him with the principles and methods of scientific investigation. *II.; M., W., F.; 2; (3).* Professor Daniels.

2. Outlines of Philosophy.—A general introduction to the study of philosophy. *I.; M., W., F.; 4; (3).* Professor Daniels.

3. Ancient and Mediæval Philosophy.—A rapid survey is taken of the development of speculative thought, beginning with the early Greek philosophers and continuing through the mediæval period. *I.; Tu., Th.; 3; (2).* Professor Daniels.

4. Modern Philosophy.—This course considers the formation and development of the problems and conceptions in philosophy from Descartes to the present time. Selections from the philosophical

masterpieces of this period are carefully studied. Special emphasis is laid upon the philosophy of Kant. *II.; daily; 3; (5).* Professor Daniels.

5. Advanced Philosophy.—The seventeenth century philosophy. A critical study of Déscartes, Spinoza, and Leibnitz. *I. and II.; Tu., Th.; 7; (2 each semester).* Professor Daniels.

Required: Two semesters in philosophy or psychology.

6. Practical Ethics.—In this course those questions which bear the closest relation to life and conduct are raised and discussed. The duties of the individual, the family, and the state are among the subjects considered. Special subjects in social ethics may be taken up. *I.; Tu., Th.; 1; (2).* Professor Daniels.

7. History and Criticism of Ethical Theories.—A careful and historical examination of the various types of ethical theory, including rational, hedonistic, eudemonistic, esthetic, and evolutional ethics. It is designed to make the student as familiar as the time allows with the writings of representative men of the various schools. *II.; M., W., F.; 1; (3).* Professor Daniels.

8. Esthetics.—A brief history and a critical study of the various theories of the beautiful. Lectures and assigned readings. *II.; Tu., Th.; 4; (2).* Professor Daniels. [Open to juniors and seniors.]

COURSE FOR GRADUATES

101. The Philosophy of Kant.

PHYSICAL TRAINING

For Men

1. Gymnasium Practice.—Two half hours' class-work, and two half hours' prescription exercises, each week. *Required of freshmen throughout the year. With course 3, 2½ hours.* Professor Shell.

2. Gymnasium Practice.—Two half hours' class-work and two half hours' prescription exercises. *Throughout the year. With course 4, 2½ hours.* Professor Shell.

Required: Physical Training 1 and 3.

3. Lectures.—Lectures upon bodily health, including such subjects as the bath, sleep, diet, ventilation, clothing, injuries from over-work and study, sedentation, tobacco, alcohol, improper posture, etc. *Once a week throughout the year. Freshmen are required to attend this course. With course 1, 2½ hours.* Professor Shell.

4. Lectures.—Muscular form and action, effects of exercise, causation of fatigue, breathlessness, coördination, automatism, deformities, etc. *Once a week throughout the year. With course 2, 2½ hours.* Professor Shell.

Required: Physical Training 1 and 3.

5. Theory of Physical Training.—For those preparing as instructors. Study of the systems of gymnastics; methods of teaching; class work; use of apparatus; effects on body; measurements; testing, prescription. *Throughout the year. 2 hours.* Professor Shell.

Required: Courses 2 and 4.

6. Competitive Athletics.—History of games and sports; general training; special forms and methods of coaching for track, fencing, wrestling, boxing, base ball, foot ball, basket ball, hockey, etc. *Throughout the year. 2 hours.* Professor Shell.

Required: Physical Training 2 and 4.

For Women

7. Practice.—Class and prescription exercises in the gymnasuim and field. *Three hours a week throughout the year. Required of freshmen. With course 9, 3 semester hours.* Miss Carpenter.

8. Practice.—*Three hours a week throughout the year. 2 hours.* Miss Carpenter.

Required: Physical Training 7, 9.

9. Hygiene.—The same as physiology 6, which see. *Required of freshmen. With course 7, 3 hours.* Professor Kemp.

PHYSICS

1. General Physics.—A course of experimental lectures. The subjects for the first semester are mechanics, heat and sound; for the second semester, electricity and magnetism and light. The course is always to be taken in connection with the laboratory course, Physics 3. *I. and II.; Lectures, M., W., F., 5; Quiz, Tu. or Th., 3; (3).* Professor Carman and Mr. Carpenter.

Required: Mathematics 3 or 4.

2. Minor Course in Physics.—The course includes selected parts in mechanics, heat, light, and electricity, and is designed for students in general science and in medical courses. *Second semester. II.; Lectures, Tu. and Th., 5; Laboratory, 7 periods; arrange time; (5).* Professor Carman, Assistant Professor Quick, and Mr. Carpenter.

Required: Mathematics 3 or 4.

3. Introduction to Physical Measurements.—Laboratory experiments running parallel with Physics 1, and required of the same students. The experiments are quantitative, illustrative of lectures, and introductory to more advanced laboratory work. *I. and II.; 3 periods; arrange time; (1½).* Assistant Professor Quick and Mr. Carpenter.

Required: Mathematics 3 or 4.

4. Electrical and Magnetic Measurements.—Recitations and laboratory. The course of recitations and lectures covers the elementary mathematical theory of electrostatics, magnetism, magnetic properties of iron, electrodynamics, and direct, alternating and polyphase currents. In the laboratory the usual electrical and magnetic measurements are made, the work running parallel with the recitation work. *I. and II.; Lecture, Tu., Th., 6; Laboratory; arrange time; (4).* Assistant Professor Sager.

5. Advanced Physical Measurements.—A laboratory course supplemented by lectures. The following lines of work are offered. Each line of work is arranged to take ordinarily one semester, but in special cases a different arrangement of experiments may be made:

(a) Mechanics.—A course of exact measurements of mass, length, volume, densities, time and gravity, using the balance, dividing engine, cathetometer, chronograph, etc.

(b) Light.—Measurements of indices of refraction and wave lengths, using the spectrometer with prisms and grating, and the concave grating with its mounting, also using the optical bench in experiments in interference, etc.

(c) Electricity and Magnetism.—A course of exact measurements of resistance, current, electromotive force, capacity and magnetic quantities.

(d) Electricity and Heat.—A course of measurements of resistance, current, and electrolytic conductivity, and some measurements of specific heat and thermal capacity. Designed particularly for students in chemistry or general science. *I. and II.; arrange time; (3 or 5).* Professor Carman and Assistant Professor Sager.

Required: Physics 1 and 3, or 2.

6. Introduction to Theoretical Physics.—A course of lectures and recitations on some branch of theoretical physics. The subjects taken in the last three years have been, Mathematical Theory of Electricity and Magnetism, Advanced Dynamics, and Thermodynamics. The subjects for 1900-1901 will be Thermodynamics and the Mathematical Theory of Electricity and Magnetism. *I. and II.;*

M., W., F.; 6; (3). Professor CARMAN and Assistant Professor SAGER.

Required: Physics 1 and 3, or 2; Mathematics 9.

7. INVESTIGATION OF SPECIAL PROBLEMS.—An advanced laboratory course in continuation of Physics 5. The student is given one or more special subjects of investigation to be conducted under the direction of the professors of the department. The machine shop of the department makes possible special and original apparatus. *I. and II.; arrange time; (3).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 4 or 5, or equivalent.

8. MATHEMATICAL PHYSICS.—A course of lectures and recitations. The subjects treated are changed each year, and are chosen to cover the general subject in two consecutive years, each year being complete in itself. The electromagnetic theory of light is the special subject for 1900-1901. *I. and II.; arrange time; (3).* Professor CARMAN.

Required: Physics 5 or 6.

9. ADVANCED ELECTRICAL MEASUREMENTS.—A course in the theory and practice of the calibration of electrical measuring instruments, using the potentiometer and other standard methods. *II.; arrange time; (1).* Assistant Professor SAGER.

Required: Physics 4.

COURSES FOR GRADUATES

101. Advanced Physical Measurements and Investigation.

102. Mathematical Physics.

103. Mathematical Theory of Electricity and Magnetism for Engineers.

PHYSIOGRAPHY

1. PHYSIOGRAPHY.—Three objects are aimed at in this course, viz.: To promote the change in the method of teaching geography so generally advocated in recent years, to provide a rational basis for the study of geographic distribution of animals and plants, to place in their proper light the geographic factors in the history of man and his present well being.

The first part of the semester is devoted to a discussion of the general principles of meteorology, oceanography, and climatology. This is followed by a study of the physical geography of North America and Europe, with reference to the objects named above.

It is assumed that the student has a good understanding of political geography, and of the principles of land development, etc., as set forth in such works as Davis's Physical Geography, Mill's Realm of Nature, or Tarr's Physical Geography. *I.; daily; 3 and 4; (5).* Professor Rolfe and Mr. Hubbard.

Required: Geology 1 or 3, or an approved entrance credit in Geology, or Physical Geography.

PHYSIOLOGY

1. Major Course.—This course is founded on the previous thorough training of the student in physics, chemistry, and zoölogy. The course is designed primarily to prepare those taking it to enter upon the study of medicine. The work begins with a comprehensive study of the microscopic structure of the tissues in general, and later includes the structure of the organs in particular, with special relation to their functions. The course, together with courses in chemistry recommended for prospective medical students, will complete a very thorough study of physiological chemistry, so far as it relates to the normal composition and functions of the organs and excretions. Frequent demonstrations in experimental physiology are given before the class, and the student is required to perform a number of such experiments under the immediate direction of the instructor. In addition, the students, working in small groups, will be required to perform assigned experiments, and to submit their records and data for examination and criticism. Practical laboratory work is insisted on throughout. *I. and II.; daily; 3 and 4; (5 each semester).* Professor Kemp.

Required: Physics 1, 3; Chemistry 1, 2, 3a, 5a, 9, 9c; Zoölogy 2.

2. Advanced Course.—Continuation of Physiology 1 through a second year. This course is designed for students who wish to get as thorough a training as possible for the study of medicine, and who can afford to take the full science course at the University leading to the B.S. degree. The work will be made up of lectures, assigned reading, and experiments in the laboratory conducted by the students themselves, under the supervision of the instructor. Course 1 will necessarily give but a limited opportunity for such personal work on the part of the student. Course 2 will enable him to have a fair degree of experience with methods and apparatus used in the most advanced lines of medical study. *I. and II.; daily; 3 and 4; (5 each semester).* Professor Kemp.

3. Investigation and Thesis.—The laboratory of the physiological department is well equipped with instruments of precision for research in histology, physiological chemistry, experimental physiology, and pharmacology. Every facility and encouragement, so far as the resources of the laboratory permit, are offered to those prepared to avail themselves of these for researches leading to theses for the bachelor's, master's, or doctor's degree, or for carrying on original work for publication.

4. Minor Course.—This course is planned for literary students and for students of natural science specializing in other lines. Especial emphasis is laid upon those facts that serve as a basis for practical hygiene, and for helping students to teach physiology in high schools. It will consist of lecture demonstrations, recitations, and laboratory work. Students who have had chemistry and zoölogy in high schools may be admitted to the course at the option of the instructors. *II.; daily; 7 and 8; (5).* Professor Kemp.

Required: Chemistry 1; Biology 1.

5. Advanced Physiology.—There are here included the following lines of laboratory work, any one or more of which may be pursued independently of the others: (a) The physiology of foods, and digestion; (b) the blood, circulation, and respiration; (c) the excretions, especially urine-analysis; (d) general physiology of nerve and muscle; (e) advanced vertebrate, especially human, histology. Work to be arranged after consultation with Professor Kemp.

6. Hygiene.—This course is offered to both men and women, and must be taken by young women who take physical training for credit. It is designed to impart a knowledge of the conditions of bodily health and activity. The course deals with those practical hygienic problems of everyday life that are wholly or in large part under the control of each individual. *I.; M.; 8; (1).* Professor Kemp.

PSYCHOLOGY

The courses in psychology will be announced at the opening of the University in the fall of 1900.

PUBLIC LAW AND ADMINISTRATION

1. Political Institutions.—Comparative study of modern political systems, their historical development and practical operation. Lectures, assigned readings, reports, and discussions. The first semester is devoted to the leading features of national and state

government of the United States; in the second semester the governments of the leading European states are studied. In connection with History 2 this course makes a full study running through the year. (See announcement under History 2.) *I. and II.; M., W., F.; 4; (3).* Professor Tooke.

2. Jurisprudence.—Elementary course in the origin, development, and classification of law, followed by an introduction to the fundamental principles of the English Common Law. *I. and II.; Tu., Th.; 3; (2).* Professor Tooke.

3. Roman Law.—Early History. The classical jurisprudence. Legislation of Justinian. Influence of the Roman system. Readings and lectures. *I. and II.; arrange time; (2).* Professor Scott.

4. International Law.—Sources and historical development. Essential powers of states, their rights and obligations. Laws and usage in times of war. *I. and II.; Tu., Th.; 4; (2).* Professor Scott.

5. Comparative Administrative Law.—General principles of the administration law of the United States, England, France, and Germany. The appointment, tenure, and duties of officers. Historical and comparative study of local government. *I. and II.; M., W.; 3; (3).* Professor Tooke.

Required: Public Law and Administration 1 and 2.

6. Comparative Constitutional Law.—A comparative study from original sources of the constitutions of the leading European states. In connection with Law 22, this course counts six semester hours. *I.; M., W.; 3; (2).* Professor Tooke.

Required: Public Law and Administration 1 and 2. [Not given in 1900-1901.]

7. Law of Municipal Corporations.—History and legal status of the American municipality. *I.; M., W.; 2; (2).* Professor Tooke.

9. Seminary in Municipal Institutions.—Open to graduates and seniors. *I. and II.; arrange time; (2).* Professor Tooke.

RAILWAY ENGINEERING

1. Locomotive Engines.—This work is a study of the constructive features of the locomotive in all its parts and of their relations. The development, applications, and limitations of the various types and their special study with reference to the relations between boiler and cylinder capacity, weight on drivers, speed, hauling capacity, etc. Tendencies in design. Includes also a study of all

accessory apparatus used in the operation of locomotives. *I.; Tu., Th.; 1; (2).* Mr. SCHMIDT.

Required: Theoretical and Applied Mechanics 1; Physics 1, 3; Mechanical Engineering 7.

2. LOCOMOTIVE ENGINE DESIGN.—The proportions and dimensions of standard locomotives are carefully studied. Calculations and designs relating to boiler and engine details, cylinder proportions for compound types of slide, valves and valve gears. *I.; Tu., W., Th.; 2, 3, and 4; (3).* Assistant Professor GOODENOUGH.

Required: Mechanical Engineering 1 to 7, 16, 17; Theoretical and Applied Mechanics 1, 2.

3. SHOP SYSTEMS.—Lectures and readings. Visits of inspection. A study of the proceedings of the societies and railway clubs, and technical press. *I.; Tu., Th.; 6, 7, and 8; (2).* Mr. SCHMIDT.

4. LOCOMOTIVE ROAD TESTS.—Arrangements for locomotive road tests have been perfected with several roads entering Champaign and Urbana. Already five locomotives have been equipped for this work and tests made in actual service conditions. This work is greatly facilitated by the use of the dynamometer and railway test cars which are now at the service of the department. This course includes also brake tests and other laboratory work. *I.; M., W.; arrange time; (4).* Mr. SCHMIDT.

Required: Theoretical and Applied Mechanics 3; Mechanical Engineering 1 to 7, 14.

5. COMPRESSED AIR IN RAILWAY SERVICE.—This will include a careful study of the construction and operation of the air-brake system in detail. The air-brake instruction cars of the I. C. R. R. and the C. C. C. & St. Louis Ry. make frequent stops at these points, and the instructors in charge kindly devote sufficient time to illustrate and explain the operation of the air-brake.

The use of compressed air in shop service is also studied. *II.; M;. 2; (1).* Mr. SCHMIDT.

Required: Mechanical Engineering 7.

6. RAILWAY ESTIMATES.—A study of costs of materials and repairs. Forms of specifications for supplies. Costs of operation and maintenance of foreign and American practice compared. *II.; Tu.; 2, 3; (1).* Professor BRECKENRIDGE.

Required: Railway Engineering 1 to 4.

7. ADVANCED DESIGNING.—Under this head attention will be paid to details of rolling stock, pumps, gas and oil engines for water supply. Special machinery for repair shop service, turntables, and

advanced problems relating to locomotive design. *II.; Tu., W., Th.; 6, 7, and 8; (3).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 3; Railway Engineering 1, 4.

8. DYNAMOMETER CAR TESTS.—Investigations will be made under actual road conditions relating to hauling capacity of engines, train resistance, due to acceleration, grades, curves, and wind pressure. Air-brake service inspections. Automatic records of track conditions as to gauge, surface, joints, and elevation of rails. Tests at stationary plants and railway shops will be made.

Arrangements for careful and scientific sampling of fuels, boiler waters, oils, paints, varnishes, and railway supplies for analysis and tests will be included in this work. *II.; F.; arrange time; (1).* Mr. SCHMIDT.

Required: Railway Engineering 4.

RHETORIC AND ORATORY

1. RHETORIC AND THEMES.—Required for students in the College of Literature and Arts. One two page theme a week, criticised by the class and by the instructor. Weekly report on assigned reading. Cairns' Forms of Discourse. *I. and II.; M., W., F.; section A, 1; section B, 3; section C, 7; (3).* Miss KYLE.

2. RHETORIC AND THEMES.—Required for students in the Colleges of Agriculture, Science, and Engineering. One two page theme a week, with an occasional four page theme, criticised by the class and by the instructor. Weekly report on assigned reading. Cairns' Forms of Discourse. *I. and II.; M., W., F.; section A, 1; section B, 2; section C, 3; (3).* Professor T. A. CLARK, Miss KYLE, and Mr. ADAMS.

3. ENGLISH COMPOSITION.—Daily themes one page in length with exercises not to exceed four pages in length every fortnight. All written work is criticised by the instructor, and, if necessary, is required to be re-written. Wendell's English Composition. *I. and II.; M., W., F.; 4; (5).* Professor T. A. CLARK.

Required: Rhetoric and Oratory 1 or 2.

4. ARGUMENTATIVE COMPOSITION.—Lectures on the principles of argumentation. Practice in the preparation of briefs and forensics. During the first semester each student will write one brief and one forensic on a subject suggested by the instructor. Each member of the course will debate at least three times as principal

disputant. Criticism of form, delivery, and subject matter. Conferences for choice of subjects and for general direction. Baker's Argumentation. *I. and II.; M., W., F.; 5; (3).* Mr. ADAMS.

Required: Rhetoric and Oratory 1 or 2.

5. ORAL DISCUSSIONS.—Weekly debates on economic and political subjects, preceded by briefs, criticism of form, delivery, and subject matter as in Rhetoric 4. Adapted to the needs of students who have had experience in debating. *I. and II.; Th.; 8 and 9; (2).* Mr. ADAMS.

Required: Rhetoric and Oratory 1 or 2 and 4.

6a. ENGLISH COMPOSITION (Advanced Course).—Two three-page exercises a week and four long themes a semester. Written criticism of themes by both students and instructor; all long themes to be re-written after criticism. Bates' Talks on Writing English. *I.; M., W., F.; 5; (3).* Professor T. A. CLARK.

Required: Rhetoric and Oratory 1 and 3.

6b. ENGLISH COMPOSITION AND LITERATURE.—The study of rhetorical principles as seen in literary masterpieces. Rhetorical analysis of the essays of Swift, Lamb, Newman, Arnold and others. Two three-page themes a week and one long exercise a semester. *II.; M., W., F.; 5; (3).* Professor T. A. CLARK.

Required: Rhetoric and Oratory 1 and 3.

7a. PUBLIC SPEAKING.—A course for practical training in public speaking, beginning with the recitation of simple narrative and descriptive selections and proceeding with more difficult extracts from orations, according to individual ability. The object is to secure naturalness in form and directnes in delivery. Criticism and instruction regarding position, enunciation, volume, inflection, and gesture. *The number admitted to this course is limited to thirty-six. I.; M., Tu., F.; 7; (1).* Mr. ADAMS.

7b. PUBLIC SPEAKING.—Same as Rhetoric and Oratory 7a, beginning with the second semester. This course is not open to those who have taken Rhetoric and Oratory 7a. *II.; section A, M., section B, Tu., section C, F.; 7; (1).* Mr. ADAMS.

8. SEMINARY.—Methods of teaching English Composition. Open to senior and graduate students. *I. and II.; W.; arrange time; (1).* Professor T. A. CLARK.

SOCIOLOGY

[See under Anthropology and Economics, pp. 178, 205.]

SPANISH

1. Grammar and Reading.—Edgren's Spanish Grammar; Knapp's Spanish Readings; Cervantes' Don Quijote; outlines of Spanish literature. *I. and II.; M., W., F.; arrange time; (3).* Professor Fairfield.

THEORETICAL AND APPLIED MECHANICS

[See Mechanics, p. 239.]

VETERINARY SCIENCE

1. Anatomy and Physiology.—The anatomy and physiology of the domestic animals, diseases of the bony structure and lameness. The instruction is given by lectures aided by demonstrations with use of skeletons, and of other apparatus, as follows: Dr. Auzoux's complete model of the horse, which is in ninety-seven pieces and exhibits three thousand details of structure; *papier-mache* model of the horse's foot; the teeth of the horse; and dissections of animals. This work is supplemented with the study of text-books. Strangeway's Veterinary Anatomy, Mills's Animal Physiology, and Diseases of Horses and Cattle. *I.; daily; 3; (5).* Professor McIntosh.

2. Veterinary Materia Medica.—This subject, which treats of the agents for the cure of disease or injury, and for the preservation of health among domestic animals, is taught by lectures and text-books, illustrated by specimens of the drugs used in veterinary practice. The compounding of medicines also receives attention. Text-books: Finlay Dun's Veterinary Materia Medica. *I. and II.; daily; 2; (5).* Professor McIntosh.

3. Theory and Practice of Veterinary Medicine and Surgery.—This subject is taught by lectures and text-books on the diseases of domestic animals, and is illustrated with specimens of morbid anatomy and by observations and practice at the free clinics. The latter are held at the Veterinary Infirmary once a week. The students assist in the operations, and thus obtain a practical knowledge of the subject. Dissections and *post-mortem* examinations are made as cases present themselves. Text-books, Diseases of Horses and Cattle, by D. McIntosh, and Williams's Practice of Veterinary Medicine and Surgery. *II.; daily; 3; (5).* Professor McIntosh.

4. Veterinary Sanitary Science.—This branch is taught by a series of lectures embracing inspection of cattle, horses, sheep, and pigs for contagious diseases; a discussion of the influence of civiliza-

tion and traffic on animal plagues, their origin and nature, diffusion, reception, and mode of access; the prevention and suppression of contagious diseases. *I.; daily; 1; (5).* Professor McIntosh.

5. Minor.—The principal diseases of domestic animals. This is required for graduation unless the student elects a greater quantity of veterinary science. *II.; first half; 4; (2½).* Professor McIntosh.

[Clinic on Wednesdays for all courses.]

ZOÖLOGY

1. General Invertebrate Zoölogy.—The work here described is so related to Zoölogy 2 that both form a continuous course of a year, either semester of which may be taken first. Commonly, however, Zoölogy 1 should be taken in the freshman year, preceding Zoölogy 2. It is devoted especially to a series of laboratory studies of invertebrate types, and to lectures on the morphology, physiology, and relations to nature, of this selected series, and on cytology and general zoölogical theory. *II.; Lecture, M., W., F.; 3; Laboratory 7 periods; arrange time; (5).* Assistant Professor Smith.

Required: Art and Design 1, an entrance credit in chemistry or Chemistry 1, an entrance credit in Zoölogy or Biology 1 or Zoölogy 5.

2. Vertebrate Zoölogy and Comparative Anatomy.—In the laboratory work of this course principal attention will be given to the anatomy of Necturus and to anatomical and systematic studies of fishes, birds, and mammals, especial reference being had to the anatomy of man. The more difficult parts of laboratory technology will be given in this course, which will also contain lectures on the general theory of organic development as illustrated by the doctrine of the descent of man. *I.; daily; 4 and 5; (5). First semester.* Assistant Professor Smith.

Required: Biology 1, or Zoölogy 1.

3. Embryology.—This course begins with a study of the sex cells and a discussion of theories of heredity, followed by a consideration of the early stages in the development of the egg. The formation of the vertebrate body is then studied in the amphibian, the chick, and the pig. Instruction is given in the preparation of embryological material and in graphic reconstruction from serial sections. *II.; daily; 2 and 3; (5).* Assistant Professor Kofoid.

Required: Zoölogy 2.

4. Advanced Zoölogy.—Under this head is offered an oppor-

tunity for individual advanced work for one or two semesters along lines to be selected in consultation with the instructor. It may include field and systematic zoölogy, or a laboratory course in mammalian anatomy, but is otherwise essentialy a research course for students specializing in zoölogy or entomology. One semester of this course or Zoölogy 6 will be required of all intending to graduate with a zoölogical thesis. If five or more students offer for the same work under this head they will receive class instruction, but otherwise students in this course will commonly be assembled as a class only for seminary work. From those taking this course selection of student assistants for the zoölogical and entomological laboratories will commonly be made, credit being given on the course for such assistance according to the recommendation of the head of the department, subject to the approval of the college faculty. *I. and II.; arrange time; (5 each semester).* Professor FORBES, or Assistant Professor SMITH.

Required: Zoölogy 1 and 2.

5. ELEMENTARY ENTOMOLOGY.—This is a laboratory and lecture course in general entomology, open to all University students, pursued without especial reference to economic ends, complete in itself, but leading to the course in general entomology (Zoölogy 6). The laboratory work is strictly entomological, but the lecture course is in great measure a course in general biology, with entomological illustrations. *I.; daily; 1 and 2; (5).* Professor FORBES.

6. GENERAL ENTOMOLOGY.—This is a course of two semesters, the work in either of which may be taken separately, offered to students who have had a sufficient amount of elementary zoölogy as a preparation. It comprises laboratory and library studies, field work, insectary work, field observation, the collection and preservaton of specimens, and the preparation and illustration of manuscript. Special instruction is given in this course in the art of entomological illustration under the supervision of an expert zoölogical artist. This course, or one semester of zoölogy 4, will be required of all intending to graduate with a zoölogical thesis. *I. and II.; daily; 3 and 4; (5).* Professor FORBES.

Required: Zoölogy 1 or 5.

7. PRACTICAL ENTOMOLOGY.—By means of laboratory studies and lectures and field and insectary observations, students will be made familiar with the commonest and most important injurious insects, and with means of preventing or arresting their injuries. *II.; daily; 6 and 7; (5).* Professor FORBES.

8. Thesis Investigation.—Candidates for graduation in the College of Science who select a zoölogical subject as a thesis are required to spend three hours a day during their senior year in making an investigation of some selected zoölogical subject. While this work is done under the general supervision of an instructor, it is in its methods and responsibilities essentially original work. *I. and II.; daily; arrange time; (5).* Professor Forbes and Assistant Professor Kofoid.

Required: Two years in zoölogical courses, including one semester of zoölogy 4.

COURSES FOR GRADUATES

101. Systematic and Faunistic Zoölogy.—This course consists of studies of invertebrate animals (including insects), and of aquatic vertebrates, so directed as to give as nearly as possible an exhaustive knowledge of a taxonomic group or of a selected geographic assemblage. If a suitable taxonomic group is chosen, its space and number relations within a definite area will be thoroughly worked out by the precise methods of modern faunistic zoölogy, including quantitative collections made by uniform methods at regular periods, and the comparative measurement or enumeration of such collections. If a geographic assemblage be selected, critical determinative work will be followed by both qualitative and quantitative studies of the various groups associated, with a view to accumulating data for an examination of the interactions of the assemblage.

102. Advanced Economic Entomology.—This is a research course in systematic and experimental entomology which involves the application to insects injurious to agriculture and horticulture of the methods and general ideas of the preceding course. It is intended to prepare students in a thoroughgoing manner for first-class investigation work in this field, and for the direction of entomological operations in agricultural experiment stations.

DEGREES

BACHELORS' DEGREES

The usual bachelors' degrees are conferred upon those who satisfactorily complete the courses of study described under the different colleges and schools. A candidate for a bachelor's degree must pass in the subjects marked *prescribed* in his chosen course, and must conform to the directions given in connection with that course in regard to electives. In the College of Literature and Arts, of Science, and of Agriculture, credit for 130 hours is required for graduation. In the College of Engineering and in the schools the candidate must complete the course of study as laid down. The number of hours required includes five in military science, and two and one-half in physical training, for men, and for women three in physical training. Men excused from the military requirements, and women who do not take courses in physical training, must elect in lieu thereof an equivalent number of hours in other subjects.

In all cases in which a thesis is required,* the subject must be announced not later than the first Monday in November, and the completed thesis must be submitted to the dean of the proper college by June 1st. The work must be done under the direction of the professor in whose department the subject naturally belongs, and must be in the line of the course of study for which a degree is expected. The thesis must be presented upon regulation paper, and will be deposited in the library of the University.

1. The degree of Bachelor of Arts is conferred on those who complete a course in the College of Literature and Arts.

2. The degree of Bachelor of Science is conferred on those who complete a course in the College of Engineering,

* See requirements for graduation in the different colleges.

of Science, or of Agriculture. The name of the course will be inserted in the diploma.

3. The degree of Bachelor of Laws is conferred on those who complete the course in the College of Law.

4. The degree of Doctor of Medicine is conferred on those who complete the course in the College of Medicine.

5. The degree of Bachelor of Library Science is conferred on those who complete the course in the School of Library Science.

6. The degree of Bachelor of Music is conferred on those who complete one of the courses in the School of Music.

7. The degree of Graduate in Pharmacy is conferred upon those who have satisfied the requirements therefor in the School of Pharmacy.

ADVANCED DEGREES

No degrees are given for study *in absentia,* except that graduates of this University, who become members of the Graduate School and reside elsewhere, may receive a second degree, upon the completion of their courses of study within not less than three years of the date of registration. For a graduate of this University who has won recognized distinction in a special line of investigation, and who otherwise fulfills the conditions for a doctor's degree, the requirement of residence for that degree will be such as may be imposed by the General Faculty of the University, on presentation of the case by the Council of Administration. Advanced degrees are conferred by the Trustees of the University only upon recommendation of the General Faculty, based upon information furnished by the Council of Administration.

SECOND DEGREES

The second degrees conferred by this University are as follows:

Master of Arts, after Bachelor of Arts.

Master of Science, after Bachelor of Science in courses of the colleges of Agriculture and Science.

Master of Architecture, after Bachelor of Science in courses in Architecture and Architectural Engineering.

Civil Engineer, after Bachelor of Science in the course in Civil Engineering.

Electrical Engineer, after Bachelor of Science in the course in Electrical Engineering.

Mechanical Engineer, after Bachelor of Science in the course in Mechanical Engineering.

Pharmaceutical Chemist, after Graduate in Pharmacy.

Graduates of other colleges and universities which have equivalent requirements for baccalaureate degrees may be given second degrees determined in kind by comparison with the usage described above.

All candidates for second degrees are required to register in the Graduate School; to conform to the conditions outlined under "Admission," "Registration," and "Examinations" (pp. 40 and 55); to pursue an approved course of study for one academic year in residence, or, in the case of graduates of this University, for three years *in absentia;* and to pass satisfactory examinations upon all the studies of the approved course.

Each candidate for a second degree must present an acceptable thesis in the line of his major subject of study. The subject of this thesis must be announced to the Dean of the General Faculty not later than the first Monday in November of the academic year in which the course is to be completed. The completed thesis, upon regulation paper, must be presented, with the certified approval of the professor in charge, to the Council of Administration not later than June 1st.

The period of required study begins from the date of registration in the Graduate School.

DOCTOR'S DEGREE

The degree of Doctor of Philosophy may be conferred upon any member of the Graduate School of not less than three years' standing who shall have reached high attain-

ments in scholarship, including a sufficient knowledge of the Latin, French, and German languages to serve the purposes of research in his principal specialty, who shall have shown marked ability in some line of literary or scientific investigation, and shall have presented a thesis giving clear indications of such scholarship and of such power of research. At least the first two, or the last one, of the three years of study must be in residence at the University, and the entire course of study must be in accordance with the regulations of the Graduate School.

The time and study required for a master's degree may be included in the three years required, but approval of a course of study for a doctor's degree must be upon the condition that the candidate is prepared through his baccalaureate work, or otherwise, to enter at once upon advanced studies in the line of this major subject, and that work on this major subject be continued through the three years.

The final examination of a candidate for the doctor's degree is conducted by a committee consisting of the head of the department under which the major subject has been pursued, as chairman, and of not less than two additional members of the General Faculty of the University, appointed for the purpose by the Council of Administration. This examination covers the subjects of the course approved for the degree, but is specially searching upon that on which the major work has been done. This examination occurs in the week preceding that upon which commencement day occurs.

Each candidate for a doctor's degree must announce to the Dean of the General Faculty a thesis subject not later than the first Monday in November of the academic year at the close of which the award of the degree is expected. A fair copy of the thesis must be submitted, with a certified approval of the committee on examinations, to the Council of Administration not later than the first day of June. If the thesis is approved by the Council the

candidate must have it printed and must deposit not less than one hundred copies with the librarian of the University.

FELLOWSHIPS

The Trustees of the University have established eight fellowships, each with a stipend of three hundred dollars, payable in ten monthly installments.

The rules governing appointments to these fellowships are as follows:

1. The purpose of these fellowships shall be to promote advanced scholarship and original research in the University.

2. The fellowships shall be open to graduates of this and similar institutions. Those who are to complete an under-graduate course previous to the academic year for which appointments are made shall be eligible, with others, as candidates.

3. Nominations to fellowships, accompanied by assignments to special departments of the University for instructional work, shall be made by the Council of Administration to the Trustees of the University, upon applications received by the President of the University each year, not later than the *twenty-fifth day of April.* These nominations shall be made at a meeting of the Council called for that purpose within the month of May. The appointments by the Trustees are made at their regular meeting in June, and shall take effect the first day of the following September. Vacancies may be filled by similar nominations and appointments at other times.

4. Nominations to fellowships shall be made upon the grounds of worthiness of character, scholastic attainments, and promise of success in the principal line of study or research to which the candidate proposes to devote himself. Consideration shall also be given to the probable value or usefulness of the services of the candidate as an assistant in instruction, but this shall not be deemed the primary object of the appointment. Other things being equal, preference

shall be given to those graduates of this University who have pursued a specialized course.*

5. Candidates must present, with their applications, full information concerning themselves and their qualifications for advanced study and research work, including any written or printed essays or results of investigation, and must name the subject in which they wish to do their major work.

6. Fellowships shall be good for one year. Appointments may not be usually renewed to the same persons, and in no case for more than one additional year; but an appointment as *honorary fellow,* without stipend, may be made as specified for paid fellowships in the case of any one who has held a regular fellowship and has shown distinguished merit in his work.

7. Fellows shall be constituted members of the Graduate School, shall have all of the privileges and bear all of the responsibilities of such membership. Each regular fellow may be called upon to render service in instruction throughout the year in the department in which his major subject lies, equal to one hour daily of class instruction or to two hours daily of laboratory supervision. This service will receive such credit as the Council of Administration may determine in each case. Blank forms for application may be obtained by addressing the Registrar.

SCHOLARSHIPS

STATE

A law passed by the General Assembly of the State of Illinois at the session of 1895 provides that there shall be awarded annually to each county of the state one state scholarship, which shall entitle the holder thereof, who shall be a resident of the senatorial district to which he is accredited, to instruction in any or all departments of the University of Illinois for a term of four years, free from

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* See pp. 64, 121. All members of the College of Engineering and of Agriculture, of the chemical and mathematical groups in the College of Science, of the College of Law, and of the Schools of Library Science and Music, are considered as pursuing specialized courses.

any charge for tuition or any incidental charge, unless such incidental charge shall have been made for materials used or for damages needlessly done to property of the University; *Provided,* that in counties having two or more senatorial districts there shall be awarded annually one additional scholarship for each of said senatorial districts.

A competitive examination under the direction of the Superintendent of Public Instruction shall be held at the county courthouse in each county of the state upon the first Saturday of June in each and every year by the county superintendent of schools upon such branches of study as said Superintendent of Public Instruction and the President of said University may deem best.

Questions for such examinations shall be prepared and furnished by the President of the University to the Superintendent of Public Instruction, who shall attend to the printing and distribution thereof to the several county superintendents of schools prior to such examinations.

The law also provides that in case the scholarship in any county is not claimed by a resident of that county, the Superintendent of Public Instruction may fill the same by appointing some candidate first entitled to a vacancy in some other county.

Candidates to be eligible to a state scholarship must be at least sixteen years of age, and must have been residents of their respective counties for the year preceding the examination.

A student holding a state scholarship who shall make it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds to defray his expenses while in attendance may, in the discretion of the President, be granted such a leave of absence, and may be allowed a period not exceeding six years from the commencement thereof for the completion of his course at said University.

The examinations will be held June 2, 1900, and June 1, 1901.

For particulars about them write to Hon. Alfred Bayliss, Superintendent of Public Instruction, Springfield, or to W. L. Pillsbury, Registrar, Urbana.

Any person, whether a candidate for a scholarship or not, may be examined for admission to the University at these state scholarship examinations.

SCHOLARSHIPS IN THE COLLEGE OF AGRICULTURE

The University will receive into the College of Agriculture annually one student from each county, outside of Cook County, and one from each of the first seven congressional districts of the state, upon the recommendation of the executive committee of the Illinois Farmers' Institute; matriculation and incidental fees are remitted to the holders of such scholarships; the benefits of the same are good for two years; and special students are eligible therefor: *Provided,* that the persons so recommended shall not have been previously in the University and shall comply with all the conditions of admission to the College of Agriculture.

Should there be more than one candidate from a county or congressional district, one of them shall receive the scholarship of his county or district and the other or others may be assigned to vacancies which may exist in other counties or congressional districts, as is customary with state scholarships.

For further particulars, address A. B. Hostetter, Secretary Illinois Farmers' Institute, Springfield.

MILITARY

Students who have gained 4 hours in class room military instruction and 4 in drill practice, are eligible for appointment as commissioned officers of the battalion. Those attaining this rank may be awarded special scholarships, good for one year, and equal in value to the University term fees for the same length of time.

PRIZES

THE HAZLETON PRIZE MEDAL

Capt. W. C. Hazleton provided in 1890 a medal, of beautiful and artistic design, which is to be awarded, at a competitive drill to be held near the close of the year, to the best drilled student. Each competitor must have been in attendance at the University at least sixteen weeks of the current college year; must not have had more than four unexcused absences from drill; and must present himself for competition in full uniform.

The award is made for excellence in these particulars:

1. Erectness of carriage, military appearance, and neatness.
2. Execution of the school of the soldier, without arms.
3. Manual of arms, with and without numbers.

The successful competitor will receive a certificate setting forth the facts, and may wear the medal until the 15th day of May following, when it will be returned for the next competition.

IN ORATORY

The Trustees of the University appropriate every year the sum of one hundred dollars for prizes in debate. The amount is divided into three prizes, of fifty, thirty, and twenty dollars, respectively, and these are awarded to the three participants whose work is adjudged best.

The debate is held some time in the month of February. A preliminary contest takes place in December, and is open to all members of the three upper classes. From the list of contestants in the preliminary debate six are selected to take part in the final competition.

INTERSCHOLASTIC ORATORICAL CONTEST

A medal of the value of twenty dollars is offered annually by the University to the high schools of the state for the best oration delivered in a competitive contest between their representatives. This contest takes place in the spring at the time of the interscholastic athletic meet.

BENEFICIARY AID

EDWARD SNYDER DEPARTMENT OF STUDENTS' AID

In 1899 Professor Edward Snyder, Professor of the German language and literature, *emeritus,* gave to the University the sum of $12,000, to be loaned to worthy students to enable them to finish their courses in the University.

This fund is, by action of the Trustees, available to junior and senior and graduate students who need aid to remain and complete their work. The minimum loan made will be fifty dollars ($50), and the maximum will be one hundred and fifty dollars ($150) to a junior and two hundred dollars ($200) to a senior or graduate student. Notes of hand are taken for the amount of the loans, with 5 per cent. interest. The maximum time limit is three years for juniors, and two years from the ensuing thirtieth day of July to seniors and graduates.

Applications for loans will be passed upon by the Council of Administration and approved by the Finance Committee of the Board of Trustees of the University.

TO WHOM LOANS MAY BE MADE

Loans will be made to matriculated students only who have attained at least the rank of full juniors, who have been in residence at this University at least one year and are at the time students in residence at this University, and who have declared their intention to graduate.

In recommending loans preference shall be given to those students who are farthest along in their University work and who have shown themselves most assiduous and successful in their studies, and who have shown habitual economy in life.

No distinction shall be made among students on account of sex or as to course of study.

A loan will not be recommended for any student who is believed to have been financially or morally delinquent in any respect.

Information given by applicants will be considered confidential on the part of the University authorities.

Applications for loans must be addressed to

THE PRESIDENT OF THE UNIVERSITY,
Champaign, or Urbana, Illinois.

CHICAGO CLUB LOAN FUND

The CHICAGO CLUB OF THE UNIVERSITY OF ILLINOIS offers two loans of $250.00 each, payable to the beneficiary, $100.00 the first year, $75.00 the second year, $50.00 the third year, and $25.00 the fourth year. The loans are offered to residents of Cook County, Illinois, only, and are to be awarded upon competitive examination to those obtaining the highest average grades. The loans are due six years after matriculation. They bear no interest while the student is in the University, but six per cent after graduation. The examination questions are prepared at the University and cover the same subjects as those for the state scholarships.

The beneficiaries of this fund also have their incidental fees, amounting to $24.00 a year, remitted by the Trustees.

CLASS OF 1895 LOAN FUND

This is a fund of $250.00, established by the class of 1895, to be loaned to needy and deserving students. According to the conditions of the gift, one-fifth of the amount is to be loaned annually, and is open to members of the freshman class only. No person may receive the benefit of the fund more than four years. The loan bears interest at the legal rate from the time the recipient leaves the University, and is due, one-half in five years, and one-half in six years, after matriculation. The management of the fund is in charge of the Council of Administration.

SOCIETIES AND CLUBS

LITERARY SOCIETIES

The ADELPHIC and PHILOMATHEAN societies for men, and the ALETHENAI for women, occupy large halls, which

the members have appropriately furnished and decorated. Meetings are held Friday evenings throughout term time.

THE CHRISTIAN ASSOCIATIONS

The Young Men's and the Young Women's Christian Associations are active and useful organizations, and have a large membership.

Subscriptions have been made by students and graduates, amounting to $23,000.00, toward a new building for these organizations. A canvass has been started outside with the hope of raising the sum to $32,000.00. If this is successful the building will be begun at once. An excellent site has been purchased.

CLUBS AUXILIARY TO COURSES OF STUDY

AGRICULTURAL CLUB

This club meets semi-monthly. It is devoted to the discussion of topics of theoretical and practical interest to students of agriculture. All students connected with the University are eligible to membership.

ARCHITECTS' CLUB

This club meets once in two weeks for the consideration of current topics of architectural interest and subjects connected with the study of architectural history. All students pursuing architectural studies are eligible to membership.

CIVIL ENGINEERING CLUB

This club meets the second and fourth Saturday evenings of each month for the reading and discussion of papers relating to civil engineering. All students pursuing the civil engineering course may become members.

THE ENGLISH CLUB

The English Club is composed of members of the Faculty, and of students who have done especially good work in English. The work of the club is confined to the study of recent writers of fiction and of poetry. The membership is

limited to thirty. Meetings are held on the second Monday of each month.

FRENCH CLUB

Le Cercle Français includes students who have had at least one year's work in French. The club meets once a month throughout the year. Its proceedings are conducted in French, the object being to supplement the work of the class room by the practical handling and understanding of the language.

THE LATIN CLUB

This is an organization for the purpose of promoting interest in the language and institutions of the Roman world. It meets once in two weeks.

LIBRARY CLUB

The instructors and students of the Library School have organized a Library Club. Any member of the staff of the University library, of the Champaign public library, or of the Urbana public library, or any student who is registered for the Library School may become an active member. Trustees of the three libraries before mentioned are considered honorary members. Any others interested in library progress may become associate members.

Meetings are held once in three weeks during the college year. The first and last meetings of the year are of a social nature. The intervening meetings are devoted to topics of literary or technical library interest.

MECHANICAL AND ELECTRICAL ENGINEERING SOCIETY

This club meets on the first and third Saturday evenings of each month. All students pursuing mechanical and electrical engineering studies are eligible to membership. Papers relating to subjects of interest to members are presented and discussed at each meeting.

MEDICAL CLUB

The Medical Club is composed of students, irrespective of courses and departments, who are preparing for medical

study, or who are for any reason interested in medical subjects. Its programs consist of lectures by members of the biological faculty and by physicians, and of papers prepared by members of the club. It meets weekly.

MUSICAL CLUBS

These are described under the School of Music (p. 149).

THE NATURAL HISTORY SOCIETY

This society is composed of instructors and students interested in the natural sciences. It conducts field excursions and exhibitions of objects of natural history, and provides occasional lectures on science subjects of general interest.

ZOÖLOGICAL CLUB

The University Zoölogical Club is composed of advanced students and instructors in the zoölogical and physiological departments, together with such other biological instructors and advanced students as are interested in its subjects. Its sessions are devoted to the presentation and discussion of abstracts of recent biological literature and of the results of investigation by the members of the club. It meets weekly in Natural History Hall.

THE ENTOMOLOGICAL CLUB

This club is composed of instructors in entomology, entomological assistants in the State Laboratory of Natural History and the State Entomologist's office, and advanced students in entomological courses. It meets weekly in Natural History Hall for the presentation of the results of investigation and discussions of current entomological literature.

MILITARY SCIENCE

The military instruction is under the charge of a graduate of the U. S. Military Academy and officer of the regular army of the United States. The course as a whole has special reference to the duties of officers of the line. A full supply of arms and ammunition is furnished by the War

Department, including 300 cadet rifles and accoutrements, and two field pieces of artillery.

Every male student able to perform military duty, and not excused for sufficient cause, is required to drill twice each week until he has gained credit for 4 semester hours. He is also required to study Drill Regulations for Infantry and to recite upon the same once a week until he gains credit for one semester hour. This practical instruction begins as soon as possible after he enters the University; but a preparatory student carrying no freshman studies and not expecting to matriculate during the year, is not permitted to drill. The standings in study and drill are placed on record, with other class credits; one semester of recitations and drill count two hours, and the three remaining semesters of drill three hours, and are requisite to graduation in every University course.

Appointments in the battalion are made on nomination by the professor in charge and confirmation by the Faculty.

Students who have passed one examination in the drill regulations and have gained 1 hour's credit in drill practice are eligible for corporals; those having 2 hours' credit in each are eligible for sergeants; and those having 4 hours' credit in each, for lieutenants and for officers of higher rank.

The battalion (four companies) is composed mainly of the members of the freshman and sophomore classes, the first supplying the corporals, the second, the sergeants. The lieutenants are taken from those of the junior class, and the major and captains from those of the senior class, who have passed through the lower grades satisfactorily.

A special military scholarship, good for one year, is open to each student who attains the grade of a commissioned officer, the value of which is paid the holder at the close of the year.

An artillery detachment is organized mainly from the second year, or sophomore, class, which receives practical instruction twice each week during the college year.

Toward the close of the year, a committee appointed by

the Faculty examines condidates for nomination to the Governor of the state to receive commissions as brevet captains in the state militia. Candidates must be members of the senior class in full standing at the time of this examination; must have completed the course of military studies; must have served three terms as captains or lieutenants, and must be approved by the Faculty as having good reputations as scholars, officers, and gentlemen.

The Trustees have prescribed a uniform of cadet gray, coat trimmed with black mohair braid, trousers with black cloth stripe, cut after the U. S. army pattern.

In order that all uniforms worn at this University may be, in quality, make, and finish in strict accordance with the specifications adopted by the Board of Trustees, all students enrolled in the military department will be required to obtain them from that firm only that may, for the time being, be under agreement and bond with the Trustees to furnish said uniforms at a stated price and of standard quality.

The University Cornet Band is composed of students, and every full term of service therein is counted as one term of drill.

PHYSICAL TRAINING

FOR MEN

The main object of the work of this department is to preserve the bodily health of the students by careful physical examinations, and rational prescriptions of exercises; by correcting physical deformities, and imperfect development; by teaching proper methods of living; and by encouraging proper intercollegiate sports.

Each student is required to undergo a physical examination so that a correct knowledge of his bodily condition may be obtained, and proper exercises prescribed. Regular classes are formed for drill on the various gymnasium appliances. Lectures are given upon personal hygiene.

All competitive athletic games are under the direct

supervision of the professor of physical training, and his medical examination is required to show that membership on any team will tend to improve the physical condition, and not cause injury.

Two courses are offered to those who wish to prepare as instructors of physical training or coaches of athletic teams.

FOR WOMEN

The general health and development of all young women in this department are carefully looked after by the Director of the Women's Gmynasium. Each one is given a physical examination, in order that her physical condition may be known, suitable exercise prescribed, and advice given.

Systematic class drill is given in Swedish, Delsarte, and American gymnastics, including free and light exercises; dumb-bells, clubs, wands, marching, fancy steps, Maypole, games, basket-ball, and exercise on the various pieces of gymnasium apparatus. The gymnasium uniform consists of navy blue serge blouse and divided skirt, and black slippers.

Throughout the fall and spring outdoor games and exercises receive considerable attention. Lectures and talks on hygiene, physical training, etc., are given during the winter.

Each student comes under the personal observation of the director and is given exercises to meet her special needs.

Every woman student not physically disqualified must take the *prescribed* work, and may elect enough to make seven hours of credit.

The women's gymnasium occupies very attractive quarters in Natural History Hall, and is well equipped. The pastime grounds near by, in use through the year, when the weather permits, have a sixteen-lap running track, eight tennis courts, two basket-ball fields, and space for hurdling, handball, and other suitable amusements.

The gymnasium is open for exercise, at certain hours, under suitable restrictions, to those who are not enrolled in classes.

EXPENSES

BOARD

The University does not furnish board, but there is a large number of suitable private places in Urbana and Champaign, within walking distance of the University, and easily accessible by electric railway, where students can obtain table board and rooms. There are several students' clubs at which the cost of meals is about two and a half dollars a week.

The Business Manager and the Young Men's and Young Women's Christian Associations of the University will aid new students in procuring rooms and boarding places.

FEES

Technological, Scientific, Agricultural, and Literary Departments.

MATRICULATION FEE. Each student not holding a scholarship, upon satisfying the requirements for admission to the University, pays the matriculation fee of................ $10 00

THE DIPLOMA FEE, payable before graduation, is............. 5 00

THE INCIDENTAL FEE. All students, except those in the Graduate School and those holding scholarships, pay, each semester, an incidental fee of.......................... 12 00

TUITION FEE. Students "conditioned" on entrance requirements, "special" students (see p. 54), except special students holding scholarships, pay, each semester, a tuition fee of.. 7 50

LABORATORY FEES AND DEPOSITS. Each student working in laboratories, or in the drafting or engineering classes, is required to make a deposit varying from 50 cents to $10.00, to pay for chemicals and apparatus used, and for any breakages or damages.

Music Department

Students who are candidates for a degree in the music department pay the matriculation fee of	$10 00
Students in the music department taking studies in other departments of the University pay the "incidental" fee each semester	12 00
They also, if not matriculated, pay, each semester, the tuition fee of	7 50

Students not enrolled in other departments, and so not paying the "incidental" fee, pay special music fees as follows:

Piano, organ, or voice, two lessons a week, each semester	$32 50
Same, one lesson a week	19 50
Violin or other stringed instrument, two lessons a week, each semester	26 50
Same, one lesson a week	14 50
These students may enter classes in Physical Training (see p. 279) on paying, each semester	5 00

Students regularly enrolled and paying the "incidental" fee in other departments pay music fees as folows:

Piano, organ, or voice, two lessons a week, each semester	$25 00
Same, one lesson a week	15 00
Violin or other stringed instrument, two lessons a week	19 00
Same, one lesson a week	10 50
All students in harmony, counterpoint, fugue, etc., in classes not to exceed four, pay, each semester	9 00

No deduction is made on account of absence in any course, except in case of protracted illness.

Students can rent pianos for practice by applying to the head of the music department.

After September, 1901, *matriculated students, residents of Illinois,* will not be required to pay extra fees for instruction in music.

College of Law

Students of the College of Law, upon satisfying the requirements for admission, pay the matriculation fee of	$10 00
Tuition fee, each semester	25 00
Students conditioned on entrance requirements pay, each semester, an additional fee of	7 50

College of Medicine

Matriculation fee, paid each year	$5 00
General ticket, each term	55 00
Laboratory Deposit (for material and breakages, balance returned)	10 00
Maternity hospital fee, payable once during senior year	10 00

School of Pharmacy

Tuition fee, each year	$75 00
Laboratory deposit, each year	5 00

Preparatory School

All pupils in the Preparatory School pay, each semester, an "incidental" fee of	$12 00
Also a tuition fee of	7 50

ALL BILLS due the University *must be paid within ten days after the student enters classes.*

NECESSARY EXPENSES

The following are, for students attending at Urbana, estimated average annual expenses, exclusive of books, clothing, railroad fare, laboratory fees, if any, and small miscellaneous needs:

*Semester fees	$24 00	to	$24 00
Room rent for each student (two in room)	23 00	"	50 00
Table board in boarding houses and clubs	90 00	"	126 00
Fuel and light	10 00	"	15 00
Washing	12 00	"	18 00
Total	$159 00	to	$233 00
Board and room in private houses, per week	4 00	"	6 00

A LUNCH ROOM for the benefit of University students will be opened in University Hall next September.

CAUTION TO PARENTS—STUDENTS' FUNDS

The Business Manager will receive on deposit any funds parents may entrust to him to meet the expenses of their

* Students of law and music, and pupils of the Preparatory School, must make needed changes in the amount given for "Semester fees."

sons and daughters. No greater error can be committed than to send young people from home with large amounts of spending money, and without the authoritative care of some prudent friend. Half the dissipation in colleges springs from excessive allowances of money.

PREPARATORY SCHOOL

INSTRUCTORS

EDWARD G. HOWE, B.S., Principal, Natural Science.
LILLIE ADELLE CLENDENIN, English.
CHARLES B. RANDOLPH, A.B., Latin and Greek.
CLARENCE W. ALVORD, A.B., History and Algebra.
JAMES W. BUCHANAN, Geometry and Physics.

This school offers special advantages to young men and women who, on account of advanced age or prolonged absence from school, are out of touch with the high school.

ADMISSION

Candidates for admission must be at least fifteen years of age. Those of age may enter such classes as they are prepared for without examination. All under twenty-one years of age, except those coming from accredited schools (see p. 41), must pass a satisfactory examination in the following subjects:

1. ARITHMETIC.—A thorough knowledge is required of fundamental operations, simple and denominate numbers, the metric system of weights and measures, common and decimal fractions, practical measurements, percentage, ratio and proportion.

2. ENGLISH.—The examination is intended to test the student's vocabulary, and his knowledge of grammar.

3. GEOGRAPHY.—An accurate knowledge of physical configuration, political divisions, and important centers of population, is required.

4. HISTORY.—As a foundation in this subject, a knowledge of

the early settlement of North America, and of the growth and development of the United States, is required. A knowledge of the nature and operation of the forces active in American life is desired, rather than the memorization of isolated dates and names.

Entrance should be made at the opening of a semester. Examinations are held in the rooms of the school. For the first semester, 1900-1901, these examinations occur on Thursday, Friday, Saturday, and Monday, the 13th, 14th, 15th, and 17th of September; for the second semester Friday and Saturday, February 1 and 2, 1901. Examinations on these dates are free, but for examinations at other times a fee of three dollars is charged.

Examinations for Entrance may be conducted in Illinois by county superintendents of schools in the same manner as for teachers' certificates, and their favorable reports will be accepted. First or second grade teachers' certificates from superintendents of Illinois will be taken for the same purpose.

Admission from Accredited Schools. On the written recommendation of their principals, students from the accredited schools of the University may be admitted without entrance examinations and credit will be allowed for all equivalent work already done. Blanks for such recommendations will be sent on application.

COURSE OF STUDY

The time necessary to prepare for the University (see p. 40) is not fixed, but depends upon the ability and previous training of the student. Applicants will be admitted at any time on presenting proof that they are prepared to pursue the selected subjects. Preparatory students generally carry four studies, one of which should be such as needs but little work outside of the class room. The number varies, however, with the ability of the student and the nature of the course.

The following schedule gives the subjects in which instruction can be had and the semester in which they are taught:

COURSE OF INSTRUCTION

[Studies may be taken in semesters as here indicated, but must be taken in the required sequence.]

First Semester.—*Algebra; English Composition and Literature, through two years; English Grammar reviewed, if necessary; Rhetoric; Drawing; French (second year); German (second year); Latin—first year, Beginner's book; second year, Cæsar and Sallust; third year, Cicero; Greek—first year, Grammar, Reader, and Composition; second year, Xenophon, Composition, and Grammar; Plane Geometry, Solid Geometry; English and American History; Physics, after the recess; Physiology, until the recess; Zoölogy.

Second Semester.—Algebra; Botany; English Composition and Literature, through two years; Rhetoric; Drawing; French (first and second years); German (first and second years); Latin—first year, Reader and Cæsar; second year, Cicero; third year, Vergil; Greek—first year, Grammar, Composition, and Anabasis; second year, Grammar, Composition, and Herodotus; Plane Geometry; Solid Geometry; English and American History; Physics.

DESCRIPTION OF COURSES

ALGEBRA

Emphasis is laid upon the use of purely literal expressions, radicals, fractional and negative exponents, and upon the fundamental nature of the equation.

BOTANY

This is a study of plants rather than of books about plants, although books are not disregarded. It is an introduction to the science, and is intended to give an acquaintance with the chief features of the subject. The analysis of simple flowers and the preparation of a small herbarium of correctly named and properly mounted plants is required. *Bergen's Elements of Botany.*

ENGLISH

The subject is presented in such a way as to increase the student's vocabulary and to develop ease and exactness of expression in his composition. Advanced grammar and rhetoric are taught in connection with this work. The study of literary masterpieces is also pursued to furnish material for the frequent written exercises,

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* If five or more apply, a class will *review* the entire subject in the first semester.

and to cultivate a taste for good literature. Considerable collateral reading in English and American authors is therefore required.

FREE-HAND DRAWING

This subject is best taken in the first semester in order that pupils may have the benefit of its training in the studies which follow. *Frederick's Notes on Free-Hand Drawing.*

FRENCH

The work in this subject will be the same as that indicated under entrance requirements, p. 50.

GERMAN

COURSE A.—Beginning work, Joynes-Meissner's Grammar and Hewett's German Reader.

COURSE B.—Advanced course. Joynes-Meissner's Grammar, Bernhardt's Prose Composition and translation of narrative prose.

Required: German A or one year of high school work.

GEOMETRY

Special attention is paid to the development of the idea of mathematical demonstration; and, as many students who can reason logically cannot express their ideas clearly, due attention is paid to correctness of form. As soon as the student has attained the art of rigorous demonstration he is required to produce constructions and demonstrations for himself. Considerable attention is devoted to original work. *Wentworth's Plane and Solid Geometry (revised).*

GREEK

The study of this subject should, when possible, be preceded by at least one year of Latin. For particulars see entrance requirements, p. 51.

HISTORY

Instruction in this subject is confined to English and American History. A detailed study of the rise and progress of the English-speaking people in England and America is made, and considerable attention is given to the origin and development of representative government. *Oman's History of England. Fiske's History of the United States, and Civil Government.*

LATIN

The ground covered consists of the grammar and selections from

Cæsar, Sallust, Cicero, and Vergil. Translation of English into Latin is made a prominent part of the work, and in connection with the Vergil the scansion of hexameter verse and matters of historical and mythological interest are studied. The Roman method of pronunciation is used, with special attention to quantity.

PHYSICS

This study is so presented as to cultivate habits of careful observation, and to develop in the student the ability to reach general conclusions inductively by means of exact experiment. In all laboratory work the student is required to keep a note-book containing a complete record of experiments performed. *Wentworth and Hill's Physics.*

PHYSICAL TRAINING

Preparatory students may have the benefit of a thorough physical examination and regular exercise, under the guidance of University instructors, but not for either entrance or University credits.

PHYSIOLOGY

In this subject the book used is illustrated by the use of charts, skeleton, and manikin, and by a series of laboratory experiments. *Colton's Physiology.*

ZOÖLOGY

Through the study of typical animals the subject is so presented as to lead the student to a knowledge of methods of scientific classification in the natural sciences, and to prepare for the more advanced work of the University.

REGULATIONS

Reports regarding all non-resident and minor students (and, upon request, regarding any others) are sent to parents or guardians as soon as students are settled in their work, and reports regarding all students are sent at the close of each semester.

The calendar of the Preparatory School is the same as that of the University.

For information about fees and expenses, see page 281.

For special information with regard to the Preparatory School, address Edward G. Howe, Urbana, Illinois.

LIST OF STUDENTS

TECHNOLOGICAL, SCIENTIFIC, AGRICULTURAL, AND LITERARY DEPARTMENTS

GRADUATE SCHOOL

Alvord, Clarence Walworth, A.B., *(Williams Coll.)*, 1891, *Champaign,* History and Philosophy.
*Barclay, Thomas, B.S., 1891, *Aurora,* Smelting and Refining Processes of the United States; Geology of Ore Deposits.
*Beckerleg, Gwavas Foster, B.S., 1899, *Chicago,* Civil Engineering.
Black, William Wesley, A.M., 1899, *Champaign,* Pedagogy.
*Bliss, Anson Lee, A.B., *(Austin Coll.)*, 1895, *Anna,* Pedagogy.
*Brown, Walter Burroughs, B.S., 1897, *Buffalo, N. Y.,* Chemistry.
*Burt, Henry Jackson, B.S., 1896, *Wall Lake, Ia.,* Civil Engineering.
Busey, Marietta Ruth, A.B., *(Vassar Coll.)*, 1899, *Urbana,* French.
Campbell, George Henry, B.L., 1895, *Champaign,* Latin.
Carpenter, Hubert Vinton, M.S., 1899, *Champaign,* Mathematics and Physics.
Chipps, Halbert Lilly, B.S., 1899, *Sullivan,* Civil Engineering.
*Clarke, Edwin Besançon, B.S., 1891, *Chicago,* Architecture.
*Clifford, Charles Luther, B.S., 1899, *Serena,* Electrical Engineering.
Clinton, George Perkins, M.S., 1894, *Urbana,* Botany.
Dillon, William Wagner, A.B., 1898, *Sheldon,* History and Economics.
*DuBois, Alexander Dawes, B.S., 1899, *Springfield,* Electrical Engineering.
Fay, John Carl, A.B., *(Berea Coll.)*, 1899, *Champaign,* Mathematics and Chemistry.
*Fischer, Louis Engelmann, B.S., 1898, *Paris,* Municipal and Sanitary Engineering.
*Foberg, John Albert, B.S., 1899, *Chicago,* Mathematics and Physics.
Fraser, Wilber John, B.S., 1893, *Champaign,* Agriculture.
Gagnier, Edward Duscharm, B.S., *(Mich. Agricultural Coll.)*, 1899, *Champaign,* Mechanical Engineering.
*Gerber, Winfred Dean, B.S., 1899, *Rockford,* Municipal and Sanitary Engineering.
Goodenough, George Alfred, B.S., *(Mich. Agricultural Coll.)*, 1891, *Urbana,* Mechanical Engineering.
*Grimes, George Lyman, B.S., 1897, *Ann Arbor, Mich.,* Mechanical Engineering.

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* In absentia, see p. 265.

*Herwig, John Newton, B.S., 1899, *Bloomington,* Mechanical Engineering.

*Honens, Fred William, B.S., 1896, *Milan,* Civil Engineering.

Hubbard, George David, M.S., 1898, *Urbana,* Paleontology, Zoölogy, and Entomology.

Jones, Louise, A.B., 1899, *Champaign,* French.

Ketchum, Milo Smith, B.S., 1895, *Champaign,* Civil Engineering.

*Ketchum, Richard Bird, B.S., 1896, *Chicago,* Civil Engineering.

*Kimball, William Haven, B.S., 1895, *San Francisco, Cal.,* Electrical Engineering.

Koch, Fritz Conrad, B.S., 1899, *Elmhurst,* Chemistry.

Kofoid, Mrs. Prudence Winter, A.B., *(Oberlin Coll.),* 1890, *Urbana,* History.

*Lampe, Margaret Henrietta Johanne, A.B., 1897, *Bloomington,* German.

Large, Thomas, A.B., *(Indiana Univ.)*, 1897, *Urbana,* Zoölogy.

Latzer, John Albert, B.S., 1899, *Highland,* Agricultural Bacteriology.

Leutwiler, Oscar Adolph, B.S., 1899, *Highland,* Mechanical Engineering.

*Linn, Homer Roberts, B.S., 1896, *Cleveland, Ohio,* Mechanical Engineering.

McCartney, William Priestley, B.S., 1893, *Champaign,* Chemistry.

Marble, Harry Curtiss, B.S., 1896, *Champaign,* Electrical Engineering.

*Martin, James Madison, A.B., 1896, *Pana,* Pedagogy, Sociology, and Psychology.

Meharry, Jesse Erle, A.B., 1899, *Tolono,* Economics.

*Millar, Adam Vause, B.S., 1897, *Champaign,* Mathematics and Astronomy.

Milne, Edward Lawrence, B.S., 1896, *Champaign,* Mathematics and Astronomy.

*Moore, Grace Lillian, B.S., 1895, *Decatur,* Natural Science.

*Newell, Mason Harder, A.B., 1899, *Springfield,* Public Law and Administration.

Paine, Arthur Elijah, A.B., 1899, *Rosemond,* Economics and History.

Porter, Horace Chamberlain, A.B., 1897, B.S., 1899, *Champaign,* Chemistry.

Quaintance, Hadly Winfield, A.B., *(Univ. of Neb.)* 1896, *Cable,* Economics and History.

*Richart, Frederick William, B.S., 1891, *Collinsville,* Mechanical Engineering.

*Parr, John Louis, B.S., 1897, *Peoria,* Architecture.

*Robinson, Lewis Archibald, A.B., 1898, *White Post, Va.,* General, L. and A.

Rose, Carlton Raymond, Ph.M., *(Univ. of Mich.)*, 1896, *Champaign,* Chemistry.

*Ross, Luther Sherman, M.S., 1890, *Des Moines, Ia.,* Biology of Subterranean Crustaceans.

Sammis, John Langley, M.S., 1899, *Champaign*, Chemistry.

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* In absentia, see p. 265.

Schulz, William Frederick, Diploma in Elect. Eng'g. *(Johns Hopkins Univ.)*, 1893, *Baltimore, Md.*, Electrical Engineering.
*Seely, Garrett Teller, B.S., 1899, *Oswego,* Civil Engineering.
Shamel, Archibald Dixon, B.S., 1898, *Taylorville,* Agricultural Physics.
Sparks, Marion Emeline, A.B., 1895, B.L.S., 1899, *Urbana,* Classical.
Spence, Franklin, B.S., 1895, *Urbana,* Architecture.
*Sweney, Don, B.S., 1896, *Galesburg,* Mechanical Engineering.
*Teeple, Wallace Douglas, B.S., 1897, *Marengo,* Architecture.
*Tower, Willis Eugene, B.S., 1894, *Chana,* Physics.
*Unzicker, William Luther, A.B., 1898, *Hopedale,* Latin.
*Waits, Charles Jefferson, A.B., *(Indiana Univ.)*, 1894, *Carlisle, Ind.*, Pedagogy.
*Walter, Charles Albert, B.S., Phar. Chem., 1898, *Indianapolis, Ind.*, The Quantitative Estimation of the Active Medicinal Principles of Plants.
*Ward, Mrs. Velma Skinner, B.L., 1877, *Champaign,* English.
*Webster, William W, B.S., 1899, *Urbana,* Mechanical Engineering.
Weirick, Ralph Wilson, B.S., 1899, *Washington,* Architecture.
*Williamson, Albert St. John, B.S., 1898, *Milwaukee, Wis.*, Mechanical Engineering.
*Wolcott, James Thompson, B.S., 1898, *Peoria,* Chemistry.
*Zimmerman, Walter Howard, B.S., 1897, *Champaign,* Mechanical Engineering.

SENIORS

[In the list which follows, "L. and A." stands for College of Literature and Arts; "S." for the College of Science.]

Abry, Bertrand Buhre,	*Cheyenne, Wy.,*	Electrical Eng'g.
Alarcó, Joseph Maria,	*Valencia, Spain,*	Civil Engineering.
Ambler, Sarah, M.S., *(Iowa Wesleyan Univ.)*, 1885,	*Mt. Pleasant, Ia.,*	Library.
Appelquist, Jerome Gustav,	*Orion,*	Civil Engineering.
Ashley, Harriet Elizabeth,	*Urbana,*	General, L. and A.
Beck, Florence Maria,	*Platteville, Wis.,*	Library.
Bennett, Edith Page,	*Mattoon,*	Classical.
Bixby, Alice Persis,	*Belvidere,*	Library.
Bracken, Ellis Freeman,	*Greenview,*	Electrical Eng'g.
Branch, Elizabeth,	*Champaign,*	Library.
vonBriesen, Julia Henrietta,	*Columbus, Wis.,*	Library.
Brown, William Jay,	*Urbana,*	Architecture.
Buchanan, James William,	*Charleston, Ind.,*	Natural Science.
Bullock, Jessie Jane,	*El Paso,*	General, L. and A.
Burke, Eugene Irving,	*Champaign,*	Philosophy, S.
Burroughs, Elmer,	*Savoy,*	Electrical Eng'g.

* In absentia, see p. 265.

Busey, Robert Oscar,	*Urbana,*	General, L. and A.
Bush, John Kenyon,	*Joliet,*	General, L. and A.
Campbell, Bruce Alexander,	*Albion,*	General, L. and A.
Capron, Clyde,	*Marion,*	General, L. and A.
Church, Walter Samuel,	*Chicago,*	Architecture.
Clatworthy, Linda Marie,	*Evanston,*	Library.
Cummings, Wilber Judd,	*Sparta, Mich.,*	Architecture.
Darmer, George Alexander,	*Champaign,*	General, L. and A.
Detrick, Nellie Elizabeth,	*Champaign,*	General, L. and A.
Dowiatt, Stanislav,	*Chicago,*	Mechanical Eng'g.
East, Edward Murray,	*DuQuoin,*	Chemistry.
Eddy, Clarence LeRoy,	*Weldon, Ia.,*	Civil Engineering.
Fisher, John William,	*Orangeville,*	Natural Science.
Foster, William Grant,	*Urbana,*	Architecture.
Fox, Harry Bert,	*Urbana,*	Natural Science.
Francis, Frank D,	*New Lenox,*	General, L. and A.
Freeman, Harry Eben,	*Millington,*	Natural Science.
Fucik, Edward James,	*Chicago,*	Electrical Eng'g.
Gernand, William Isaac,	*Rossville,*	Electrical Eng'g.
Gibbs, George, Jr.,	*Riverton, Ky.,*	Natural Science.
Graham, Hugh Joseph,	*Springfield,*	General, L. and A.
Gray, Robert,	*Elburn,*	Electrical Eng'g.
Gunthorp, Pauline, B.L., *(Univ. of Wis.)*, 1898,	*Austin,*	Library.
Hall, Elizabeth T,	*Oregon,*	General, L. and A.
Hall, John Calvin,	*Downs,*	General, L. and A.
Hannan, John Edward,	*Champaign,*	General, L. and A.
Hanson, Rachelle Margaret,	*Urbana,*	Natural Science.
Harker, Oliver Albert, Jr.,	*Carbondale,*	General, L. and A.
Hartrick, Nancy Emma,	*Urbana,*	General, L. and A.
Harts, David Hassleton, Jr.,	*Lincoln,*	General, L. and A.
Hasson, Harry,	*Lewistown,*	Chemistry.
Haven, Georgetta,	*Cincinnati, Ohio,*	Library.
Hawley, William Albert,	*Dundee,*	Civil Engineering.
Hayes, Zella Bernice,	*Rankin,*	General, L. and A.
Headen, Thomas Moulton,	*Shelbyville,*	General, L. and A.
Hines, Edward George,	*Hucy,*	Architecture.
Holabird, Robert Grant,	*Chicago,*	Architectural Eng'g.
Hoppin, Charles Albert,	*Aurora,*	Mechanical Eng'g.
Housel, Oscar Lloyd,	*Galesburg,*	Electrical Eng'g.
Hughes, Clarence Wilbert,	*Urbana,*	General, L. and A.

Hurlbert, Flora Dorothy,	*Morrison,*	Library.
Jackman, Ida Louise,	*Elgin,*	Library.
Jahr, Torstein, A.B., *(Norwegian Luth. Coll., Ia.)*, 1896,	*Chicago,*	Library.
Johnson, Charles Sunderland,	*Champaign,*	Mechanical Eng'g.
Johnston, Arthur Russell,	*Joliet,*	Chemistry.
Jordan, George Thomas,	*Tolono,*	General, L. and A.
Keeney, Henry Ezra,	*Sterling,*	Mechanical Eng'g.
Kepler, George Frank,	*Ashtabula, Ohio,*	Architecture.
Kirkpatrick, Asa Baird,	*Elmwood,*	Natural Science.
Krahl, Benjamin Franklin,	*Aurora,*	Civil Engineering.
Kratz, James Piatt,	*Monticello,*	General, L. and A.
Kuehn, Alfred Leonard,	*Chicago,*	Civil Engineering.
Lathrop, Olive Clarice,	*Hastings, Mich.,*	Library.
Latzer, Jennie Mary,	*Highland,*	Natural Science.
Laugman, John Oscar,	*Helmar,*	Natural Science.
Lee, Julian Liechaski,	*Memphis, Tenn.,*	Mech. Eng'g.
Logue, Charles Louis,	*Danville,*	Chemistry.
McLean, John Wallace,	*Allerton, Ia.,*	Agriculture.
McWilliams, Nellie Louise,	*Champaign,*	General, L. and A.
Mather, Lydia Maria,	*Joliet,*	Latin.
Maury, Harry VanReed,	*Rossville,*	Civil Engineering.
Mayall, Edwin Lyman,	*Peoria,*	Mechanical Eng'g.
Merrill, Stillwell Frederick,	*Collinsville,*	Chemistry.
Newton, Fred Earle,	*Onarga,*	General, L. and A.
Norton, Wilbur Perry,	*Alton,*	Electrical Eng'g.
Null, Marion Michael,	*Blandinsville,*	Natural Science.
Owens, Wilkens Hoover,	*Baltimore, Md.,*	Natural Science.
Palmer, William Gay,	*Princeton,*	Latin.
Paul, Wesley Arthur,	*Peoria,*	Natural Science.
Peeples, Cornelius James,	*Shawneetown,*	General, L. and A.
Pettinger, Robert Gerald,	*Cumberland, Ia.,*	Electrical Eng'g.
Phillips, Theodore Clifford,	*Mt. Carroll,*	Municipal Eng'g.
Pollard, Earle Royal,	*Centralia,*	Mechanical Eng'g.
Ponzer, Ernest William,	*Henry,*	Math. and Physics.
Posey, Chessley Justin,	*Normal,*	Natural Science.
Praeger, William Emilius,	*Urbana,*	Natural Science.
Price, Anna May,	*Fairbury, Neb.,*	Library.
Price, Helen Louise,	*Urbana,*	Library.
Quisenberry, Arthur Clifford,	*Lincoln,*	General, L. and A.
Radley, Guy Richardson,	*Sandwich,*	Electrical Eng'g.

Ray, Walter Thornton,	*Eureka,*	Mechanical Eng'g.
Reardon, Neal Daniel,	*Boynton,*	Political Science.
Reimers, Fred William,	*Evanston,*	Electrical Eng'g.
Ricker, Raymond Craver,	*Harvey,*	Architecture.
Robbins, Ernest Thompson,	*Payson,*	Agriculture.
Robertson, Lloyd Silas,	*Barrington,*	Agriculture.
Rochow, Carl John Frederick,	*Rock Island,*	Natural Science.
Rolfe, Martha Deette,	*Champaign,*	Natural Science.
Rugg, Edna Almira, A.B., *(Portland Univ.)*, 1898,	*Urbana,*	General, L. and A.
Ryburn, Charles A,	*Heyworth,*	General, L. and A.
Safford, Edward Brigham,	*Sycamore,*	Chemistry.
Sanford, Delia Cleora,	*Chicago,*	Library.
Sawyer, Ida Estelle, Ph.B., *(Northwestern Univ.)*, 1896,	*Evanston,*	Library.
Schneider, Edward John,	*Pontiac,*	Municipal Eng'g.
Scudder, Benjamin Harrison,	*Center, Ind.,*	General, L. and A.
Sears, Minnie Earl, M.S., *(Purdue Univ.)*, 1894,	*Lafayette, Ind.,*	Library.
Seely, Blanche, B.L., *(Univ. of Minn.)*, 1896,	*Minneapolis, Minn.,*	Library.
Shawhan, Gertrude, B.L., 1894,	*Champaign,*	Library.
Shrum, Mabel Claire,	*LaJunta, Colo.,*	Library.
Slocum, Roy Harley,	*Champaign,*	Civil Engineering.
Smith, George Russell,	*Urbana,*	Mechanical Eng'g.
Smith, William Walter,	*Broadlands,*	Ger. and Rom. Lang.
Soverhill, Harvey Allen,	*Tiskilwa,*	Mechanical Eng'g.
Stakemiller, Benjamin Benton,	*Sterling,*	Civil Engineering.
Strohm, Adam Julius,	*Urbana,*	Library.
Strout, Frank Asbury,	*Joliet,*	Mechanical Eng'g.
Temple, Harry Roberts,	*Elida,*	Architecture.
Thompson, George Henry,	*Champaign,*	Political Science.
Thorpe, John Charles,	*Urbana,*	Mechanical Eng'g.
Tyler, Walter Simeon,	*Joliet.*	Electrical Eng'g.
VanPatten, Seth Fields,	*Clarion, Ia.,*	General, L. and A.
Waldo, Marie L,	*Champaign,*	Natural Science.
Wandell, Caroline,	*Phoenix, N. Y.,*	Library.
Waters, Willard Otis, A.B., *(Benzonia Coll.)*, 1896,	*Benzonia, Mich.,*	Library.
Wehrstedt, Otto Charles,	*Evanston,*	Civil Engineering.

West, Maybelle Gay, B.L., *(Knox Coll.)*, 1894,	*Galesburg,*	Library.
Wiley, Raymond Sly,	*Belleflower,*	Architecture.
Willcox, Lucy Bertha Ely,	*Chicago,*	Library.
Wood, Harvey Edgerton,	*Joliet,*	General, L. and A.
Woods, William Francis,	*Urbana,*	General, L. and A.
Wray, Thomas,	*Streator,*	Electrical Eng'g.

JUNIORS

Allen, Albert Miller,	*Oberlin, Ohio,*	Architecture.
Allen, Frank Gilbert,	*Rock Island,*	Mechanical Eng'g.
Applegate, Alpheus Miller,	*Atlanta,*	Music.
Armitage, James Howard,	*Buckingham,*	Classical.
Armold, Clarence Scarborough,	*Payson,*	Mechanical Eng'g.
Bailey, Donald Herbert,	*Clinton,*	General, L. and A.
Baker, Horatio Weber,	*Champaign,*	Civil Engineering.
Baldwin, Aneta,	*Paris,*	General, L. and A.
Bardwell, Faith Leland,	*Champaign,*	General, L. and A.
Barnett, Arthur,	*Hallsville,*	Natural Science.
Beebe, Florence Jennie,	*Blunt, S. Dak.,*	General, L. and A.
Bell, Arthur Timothy,	*Azotus,*	Math., L. and A.
Bell, Edgar Deforest,	*Urbana,*	Mechanical Eng'g.
Bird, Frederick Joel,	*Woodstock,*	Railway Eng'g.
Black, Alice Mary,	*Champaign,*	General, L. and A.
Black, Laura Louise,	*Champaign,*	General, L. and A.
Bonser, Frederick Gordon,	*Pana,*	Philosophy, S.
Borton, William Franklin,	*DeLand,*	Mechanical Eng'g.
Boyd, Edward Parkman,	*Aledo,*	Architecture.
Brayton, Louis Frederick,	*Mt. Morris,*	Architectural Eng'g.
Brenke, Mrs. Katherine Read,	*Champaign,*	General, L. and A.
Bridgman, Minnie Clarke,	*Keene, N. H.,*	Library.
Briggs, Claude Porter,	*Minier,*	General, L. and A.
Buell, Fred Allen,	*Houston, Texas,*	Electrical Eng'g.
Bundy, Ralph Parmer,	*Zionsville, Ind.,*	General, L. and A.
Burdick, Jay Horace,	*Elgin,*	Agriculture.
Calhoun, Henrietta Anne,	*Champaign,*	Natural Science.
Campbell, Ashton Ellsworth,	*Champaign,*	General, L. and A.
Carr, George Russell,	*Oak Park,*	Chemistry.
Carroll, Jessie Anna, A.B., *(Wilmington Coll.)*, 1895,	*Wilmington, Ohio,*	Library.
Carter, Florence Emeline,	*Waukegan,*	Library.
Chamberlin, Charles Cory,	*Hoopeston,*	General, L. and A.

Chapin, Edward Pierce,	*Champaign,*	General, L. and A.
Chester, Margaret Belle,	*Champaign,*	General, L. and A.
Chipps, Willis Cullem,	*Sullivan,*	Mechanical Eng'g.
Clark, Elwyn Lorenzo,	*Momence,*	Civil Engineering.
Cole, Agnes Mary, B.S., *(Wheaton Coll.)*, 1893,	*Wheaton,*	Library.
Cole, Emo Lizzie,	*Keokuk, Ia.,*	General, L. and A.
Collins, Guy Richard,	*Urbana,*	Mechanical Eng'g.
Cone, George Carroll,	*Farmington,*	Architecture.
Cook, Ernest,	*St. Joseph,*	General, L. and A.
Crocker, William,	*Kewanee,*	General, L. and A.
Crossland, George Marshall,	*Sheldon,*	General, L. and A.
Curfman, Lawrence Everett,	*Urbana,*	Math. and Physics.
Dadant, Louis Charles,	*Hamilton,*	Mechanical Eng'g.
Davis, Mary Belle,	*Urbana,*	General, L. and A.
Davison, Mabel Katherine,	*Joliet,*	Library.
Dillon, Gertrude Sempill,	*Sheldon,*	General, L. and A.
Dillon, Roy Hodgson,	*Normal,*	Electrical Eng'g.
Drew, Fred Leon,	*Elgin,*	Mechanical Eng'g.
Drury, Clair Fred,	*New Boston,*	Architecture.
Emmett, Arthur Donaldson,	*Peoria,*	Chemistry.
Fellingham, Clark Hughes,	*Verona,*	Agriculture.
Fishback, Mason McCloud,	*Champaign,*	Political Science.
Fisher, James Melville,	*Neoga,*	General, L. and A.
Frazey, Nellie May,	*Urbana,*	General, L. and A.
Frank, Charles Wilber,	*Brookville,*	General, L. and A.
Frost, Frank G,	*Gays,*	Mechanical Eng'g.
Fulton, Robert Bruce,	*Hartford City, Ind.,*	Civil Eng'g.
Gardiner, Charles Matthew,	*Champaign,*	Chemistry.
Garnett, Grace Ann,	*St. Mary,*	General, L. and A.
Gayman, Myrtle,	*Champaign.*	Library, L. and A.
Gibbs, Laura Russell,	*Riverton, Ky.,*	Library.
Gilmore, Thomas,	*Macomb,*	Electrical Eng'g.
Gleason, Harry Allan,	*Champaign,*	Natural Science.
Gordon, Joseph Hinckley,	*Vandalia,*	Classical.
Graber, Howard Tyler,	*Peoria,*	Chemistry.
Green, Frances Myrtle,	*Urbana,*	General, L. and A.
Greene, Charles Thomas,	*Chicago,*	Classical.
Gridley, Harry Norman,	*Virginia,*	General, L. and A.
Griswold, Augustus Harold,	*Princeton,*	Electrical Eng'g.
Griswold, Lewis Edwin,	*Blue Mound,*	Agriculture.

Gross, Albertina Marguerite,	*Joliet,*	Library.
Hammers, Edna Rose,	*Champaign,*	General, L. and A.
Harris, Borden Baker,	*Quincy,*	Civil Engineering.
Harrison, Dale Stuart,	*Sterling,*	Civil Engineering.
Hartrick, Dinchen Clara,	*Urbana,*	General, L. and A.
Hartrick, Guy Russell,	*Urbana,*	Chemistry.
Hays, Carl,	*Urbana,*	Civil Engineering.
Hensley, Marion Charles,	*Champaign,*	Chemistry.
Hicks, Byron Wallace,	*Warren,*	Civil Engineering.
Hinkle, Ida May,	*Champaign,*	General, L. and A.
Hobble, Arthur Casson,	*Rushville,*	Electrical Eng'g.
Hopkins, Mabel,	*Indianapolis, Ind.,*	Gen., L. and A.
Horner, Harlan Hoyt,	*Cerro Gordo,*	General, L. and A.
Howard, Clara Elizabeth,	*Bloomington,*	General, L. and A.
Hunter, Harry Edgar,	*Newton, Ia.,*	Architecture.
Husk, Frederick William,	*Shabbona,*	Electrical Eng'g.
Iddings, Daisy Deane,	*Atlanta,*	English.
Johnson, James Edward,	*Champaign,*	General, L. and A.
Jones, Albert Edward,	*Lena,*	General, L. and A.
Jones, Fannie Ella,	*Morris,*	Library.
Jones, Warren,	*Whitehall,*	Natural Science.
Joy, Samuel Scott,	*Princeton,*	Architecture.
Keator, Edward Oris,	*Polo,*	Civil Engineering.
Kelley, Frances Emily,	*St. David,*	General, L. and A.
Kemmerer, John Martin,	*Assumption,*	Civil Engineering.
Kemp, John Edward,	*Lake Forest,*	Civil Engineering.
Ketzle, Henry Benjamin,	*Reynolds,*	Mechanical Eng'g.
Kirkpatrick, Harlow Barton,	*Anna,*	Civil Engineering.
Kittredge, Mary Harriett,	*Keene, N. H.,*	Library.
Kreikenbaum, Charles Otto Adolph,	*Chicago,*	Chemistry.
Layton, Katherine Alberta,	*Canton,*	Classical.
Lindley, Walter Charles,	*Neoga,*	Political Science.
Livingston, Stacia,	*Plainfield, Wis.,*	Library.
Lodge, Paul Edmund,	*Monticello,*	General, L. and A.
Lotz, John Rudolph,	*Lockport,*	Civil Engineering.
Lowenthal, Fred,	*Chicago,*	General, L. and A.
Lyman, Frank Lewis,	*Farmingdale,*	Chemistry.
Lytle, Ernest Barnes,	*Decatur,*	Math. and Physics.
McAnally, Harry Forrest,	*Paris,*	Mechanical Eng'g.
McCormick, Roscoe,	*Garber,*	Natural Science.
McCune, Fred Leavitt,	*Chicago,*	Mechanical Eng'g.

McLane, Elmer Cavett,	*Allerton, Ia.,*	Classical.
Manley, Katherine O'Donovan,	*Oshkosh, Wis.,*	Library.
Marsh, Albert Leroy,	*Pana,*	Chemistry.
Martin, May Louise,	*Geneva, Ohio,*	Library.
Martin, Webb Wilde,	*Jerseyville,*	Chemistry.
Miles, Harriette,	*Elgin, Kas.,*	Library.
Miles, Rutherford Thomas,	*Champaign,*	Chemistry.
Miller, William Pitt,	*Champaign,*	Math. and Physics.
Mitchell, Anna,	*Bement,*	General, L. and A.
Mojonnier, Timothy,	*Highland,*	Chemistry.
Moon, Amy Constance,	*Champaign,*	Library.
Moore, Benjamin Clay,	*LeRoy,*	General, L. and A.
Myers, Jesse J,	*Green River,*	Natural Science.
Neikirk, John Oscar,	*Forest City,*	Mechanical Eng'g.
Newcomb, Cyrus Forsyth,	*Champaign,*	Natural Science.
Nichols, Bertha Vie,	*Champaign,*	General, L. and A.
Nichols, Gunther,	*Lima, Ind.,*	General, L and A.
Norton, Charles Waterman,	*Lockport,*	Classical.
O'Hair, Edna Elizabeth,	*Laurel, Ind.,*	General, L. and A.
Padden, Edward James,	*Chicago,*	Natural Science.
Parkins, Charles Raymond,	*Chicago,*	Civil Engineering.
Patrick, Frederick Phillips,	*Blue Mound,*	Architectural Eng'g.
Pickrell, Per,	*Lanesville,*	Library.
Pletcher, Nuba Mitchel,	*Hoopeston,*	General, L. and A.
Radcliffe, William Hickman,	*Springfield,*	Civil Engineering.
Read, Nellie Lewis,	*Urbana,*	General, L. and A.
Redfield, George William,	*Galesburg,*	Electrical Eng'g.
Reynolds, Mabel,	*Jacksonport, Wis.,*	Library.
Roberts, Harry Ashton,	*Ottawa,*	Civil Engineering.
Rolfe, Mary Annette,	*Champaign,*	Natural Science.
Schroeder, Curt August,	*Chicago,*	Chemistry.
Scott, Frank William,	*Centralia,*	General, L. and A.
Short, Walter Campbell,	*Fillmore,*	General, L. and A.
Simmons, Arthur Trabue,	*Jerseyville,*	Architecture.
Slocumb, Edward Clyde,	*Champaign,*	Civil Engineering.
Sluss, Alfred Higgins,	*Tuscola,*	Electrical Eng'g.
Smith, Bruce,	*Newman,*	General, L. and A.
Smith, George Carroll,	*Flora,*	General, L. and A.
Smith, Percy Almerin,	*Dixon,*	Natural Science.
Spellman, Lorinda Ballou,	*Granville, Ohio,*	Library.
Stevenson, Ralph Ewing,	*Bloomington,*	Civil Engineering.

Stewart, Miles Vincent,	*Toulon,*	Electrical Eng'g.
Talbot, Carrie E,	*Plymouth,*	Classical.
Tallyn, Louis Liston,	*Benson,*	Civil Engineering.
Theodorson, William Auton,	*Chicago,*	Civil Engineering.
Thompson, Mary, A.B., *(Leland Stanford Junior Univ.)*, 1898,	*Milwaukee, Wis.,*	Library.
Tull, Effie May,	*Farmer City,*	Classical.
Tumbleson, Alvin Truesdell,	*Harrisonville, Mo.,*	Architecture.
Viers, David Carroll,	*Urbana,*	Mechanical Eng'g.
Wahl, Henry,	*Champaign,*	Electrical Eng'g.
Wait, Ernest Ludden,	*Urbana,*	Chemistry.
Warner, Harry Jackson,	*Prophetstown,*	Chemistry.
Welles, Winthrop Selden,	*Urbana,*	Natural Science.
Wentworth, John Lewis,	*Kewanee,*	Mechanical Eng'g.
Wesselhoeft, Charles Dietrich,	*Chicago,*	Electrical Eng'g.
Wetherbee, Charles Earl,	*Sterling,*	Architecture.
Williams, Ralph Joseph, A.B., *(Knox Coll.)*, 1897,	*Galesburg,*	Architecture.
Williams, Seymour,	*Monticello,*	General, L. and A.
Williams, Winifred Sue,	*Newman,*	General, L. and A.
Willis, Clifford,	*Urbana,*	Natural Science.
Willson, Hiram Everett,	*Carbondale,*	Mechanical Eng'g.
Wing, Florence Sherwood,	*LaCrosse, Wis.,*	Library.
Wright, Sidney Walter,	*Atlanta,*	General, L. and A.

SOPHOMORES

Abbott, Ruth,	*Chicago,*	Library, L. and A.
Ahrens, Anna Wilhelmina,	*Champaign,*	General, L. and A.
Allen, Edith Louise,	*Delavan,*	Natural Science.
Alspach, Fred Albert,	*Mt. Pulaski,*	Civil Engineering.
Armstrong, J Latrell,	*Urbana,*	Natural Science.
Bader, Will John,	*Quincy,*	Chemistry.
Barackman, Guy Bernard,	*Streator,*	Civil Engineering.
Barnsback, Seddie Elizabeth,	*Edwardsville,*	Library, L. and A.
Barr, John,	*Urbana,*	Civil Engineering.
Beers, LeRoy Fitch,	*N. Harvey,*	Electrical Eng'g.
Beidler, Gertrude Louis,	*Champaign,*	Music.
Bennett, Helen Prentiss,	*Mattoon,*	Library.
Bennett, John Lewis,	*Mattoon,*	General, L. and A.
Bennett, William Lee,	*Urbana,*	Classical.
Berfield, Clyde,	*Toulon,*	Natural Science.

Berger, Donald Forbes,	*Anna,*	Agriculture.
Bidwell, Carlyle Dickerman,	*Chicago,*	Electrical Eng'g.
Bopp, William George,	*Chicago,*	General, L. and A.
Brookings, Louise Roberts,	*DuQuoin,*	General, L. and A.
Brown, Lewis,	*Rockford,*	Electrical Eng'g.
Bulkeley, Claude Augustus,	*Galesburg,*	Electrical Eng'g.
Burnham, Edna Sophia,	*Dixon,*	Natural Science.
Busey, Paul Graham,	*Urbana,*	Natural Science.
Cabeen, Fred Earl,	*Aledo,*	Agriculture.
Cadwell, Charles Nickerson,	*Cadwell,*	General, L. and A.
Cambridge, Louis,	*Tuscola,*	Math. and Physics.
Carriel, Fred Clifford,	*Jacksonville,*	Railway Eng'g.
Carter, Opal Gertrude,	*Champaign,*	Natural Science.
Carter, William Curtis,	*Homer,*	Electrical Eng'g.
Chapin, Arlo,	*Champaign,*	General, L. and A.
Chapman, Charles Hiram,	*Vienna,*	General, L. and A.
Clark, Emma Alberta,	*Urbana,*	General, L. and A.
Clarke, Roger Newman,	*Edwardsville,*	Civil Engineering.
Clarke, Victor Hugo,	*Quincy,*	Mechanical Eng'g.
Coen, Homer Clarence,	*Olney,*	General, L. and A.
Coffman, George Benjamin,	*Chillicothe,*	Natural Science.
Collis, Frank Bernard,	*Rockford,*	Electrical Eng'g.
Condit, Jay Sidney,	*Beardstown.*	Political Science.
Cook, William Adelbert,	*Urbana,*	General, L. and A.
Cottingham, William Stillman Chapin,	*Bloomington,*	Agriculture.
Cowley, Thomas Philip,	*Rockford,*	Mechanical Eng'g.
Cunningham, Ralph Edwin,	*Emporia, Kas.,*	Electrical Eng'g.
Daugherty, Anna Elizabeth,	*Sullivan,*	General, L. and A.
Day, Charles Phillip,	*Urbana,*	Mechanical Eng'g.
Dedman, Bryant,	*Sullivan,*	Mechanical Eng'g.
DeMotte, Roy James,	*Urbana,*	Natural Science.
DeMotte, Ruby Thorne,	*Urbana,*	Natural Science.
DeVelde, Harry Samuel,	*Chicago,*	General, L. and A.
Dobbins, Ethel Irene,	*Champaign,*	General, L. and A.
Dole, Sarah,	*Mattoon,*	Library, L. and A.
Donoghue, William Joseph,	*LaSalle,*	Chemistry.
Draper, Charlotte Enid,	*Hakodate, Japan,*	Gen., L. and A.
Draper, Edwin Lyon,	*Urbana,*	Chemistry.
Duffy, Guy,	*Ottawa,*	Political Science.
English, Edward Cary, Jr.,	*Anna,*	Architecture.

Engstrom, Ella Victoria,	*Peoria,*	Natural Science.
Ensign, Alice Orra,	*Oak Park,*	Library, L. and A.
Falkenberg, Fred Peter,	*Chicago,*	Math. and Science.
Farrar, Floyd Judson,	*Downer's Grove,*	Civil Eng'g.
Farrin, James Moore,	*Cairo,*	Civil Engineering.
Farrin, William Otis,	*Cairo,*	Agriculture.
Fisher, Clara Edna,	*Champaign,*	General, L. and A.
Fleming, Rose Eilene,	*Bement,*	General, L. and A.
Forbes, Ethel Clara Schumann,	*Urbana,*	General, L. and A.
Francis, Oscar Jefferson,	*Omaha, Neb.,*	Architecture.
Freeman, Florence Marcia,	*Chicago,*	Library.
Freese, John Andrew,	*Cadwell,*	Natural Science.
Fullenwider, Thomas Irvin,	*Mechanicsburg,*	Civil Engineering.
Fullerton, Hugh Regnier,	*Havana,*	General, L. and A.
Fursman, William Hiram,	*El Paso,*	Civil Engineering.
Gage, Ralph Hawes,	*Chicago,*	Civil Engineering.
Gaston, Ralph Mayo,	*Normal,*	Electrical Eng'g.
Gilkerson, Aletha,	*Urbana,*	Natural Science.
Gillespie, Belle Irene,	*Champaign,*	General, L. and A.
Gillespie, Louella Ida,	*Champaign,*	Music.
Goff, Mary Emma,	*Rantoul,*	General, L. and A.
Graves, Marjorie,	*Dubuque, Ia.,*	Library, L. and A.
Greenman, Edwin Gardner,	*Champaign,*	Mechanical Eng'g.
Gulick, Margaret Grace,	*Champaign,*	General, L. and A.
Hagedorn, Carl Frederick,	*Rock Island,*	Chemistry.
Hammers, Jesse,	*Champaign,*	General, L. and A.
Hanna, Max Ross,	*Rushville,*	Electrical Eng'g.
Hannah, Calvin Richard,	*Chrisman,*	Natural Science.
Harman, Ira Chase,	*Milford,*	Natural Science.
Harman, John James,	*Milford,*	Civil Engineering.
Harris, Chester Ellis,	*Ogden,*	Natural Science.
Harris, Effie Estelle,	*Champaign,*	Music.
Harris, Thomas Luther,	*Modesto,*	Political Science.
Harshman, Lucius Romaine,	*Sullivan,*	Classical.
Hayward, Mabel,	*Chicago,*	Library, L. and A.
Hayward, Minnie,	*Chicago,*	Library, L. and A.
Henderson, Alexander,	*Chicago,*	General, L. and A.
Herrick, Dwight Orson,	*Farmer City,*	General, L. and A.
Herrick, Lyle George,	*Farmer City,*	General, L. and A.
Higgins, Samuel Chase,	*El Paso, Texas,*	Mechanical Eng'g.
Hostetter, Abram,	*Mt. Carroll,*	Natural Science.

Hotchkiss, Lulu May,	*Hannibal, Mo.,*	Natural Science.
Howe, Harriet Emma,	*Urbana,*	General, L. and A.
Jarman, Henry Phelps,	*Elmwood,*	Chemistry.
Johnsen, Charles William,	*Rankin,*	General, L. and A.
Johnson, Ananias Parnell,	*Rantoul,*	General, L. and A.
Johnson, Fred Vollentine,	*Champaign,*	Mechanical Eng'g.
Johnson, John Peter,	*Des Moines, Ia.,*	Mechanical Eng'g.
Jutton, Lee,	*Champaign,*	Civil Engineering.
Kable, Charles Howard,	*Virden,*	Architecture.
Kelly, Arthur Rolland,	*Waterloo, Ia.,*	Architecture.
Kerns, Harriet White,	*Champaign,*	General, L. and A.
Kimmel, Howard Elihu,	*DuQuoin,*	General, L. and A.
Kofoid, Reuben Nelson,	*Normal,*	Chemistry.
Kolbe, Benjamin Ralph,	*St. James, Minn.,*	Mech. Eng'g.
Langworthy, Carrie Valeria,	*Dubuque, Ia.,*	Library, L. and A.
Lehmpuhl, Hermann Frank,	*Chicago,*	Electrical Eng'g.
Lindgren, Justa Morris,	*Moline,*	Chemistry.
Logan, Harry Ralph,	*Arcola,*	General, L. and A.
Lummis, Jessie Isa,	*Quincy,*	General, L. and A.
Lundgren, Carl Lee,	*Marengo,*	Civil Engineering.
McCall, Eugene Adolphus,	*Vienna,*	General, L. and A.
McCarthy, Harry,	*Moline,*	Mechanical Eng'g.
McCulloch, Albert Barnes,	*St. Louis, Mo.,*	Natural Science.
McGinnis, Mary Ola,	*Dawson,*	Natural Science.
Malcolm, Charles Wesley,	*Roseville,*	Civil Engineering.
Manspeaker, Pearle,	*Champaign,*	General, L. and A.
Mapes, John Victor,	*Paris,*	Chemistry.
Martin, Albert Carey,	*LaSalle,*	Architecture.
Martin, James Walter, Jr.,	*Wilmington,*	General, L. and A.
Mather, Jennie Marie,	*Plainfield,*	General, L. and A.
Mathews, Clyde Milton,	*Urbana,*	General, L. and A.
Mathis, Roy Hayes,	*Prophetstown,*	Natural Science.
Matthews, Robert Clayton,	*Joliet,*	Mechanical Eng'g.
Maxwell, Esther Anna,	*Champaign,*	Library, L. and A.
Meier, William,	*Chicago,*	Civil Engineering.
Miller, Helene Augusta,	*Paris,*	General, L. and A.
Mills, Ralph Garfield,	*Decatur,*	Natural Science.
Monier, Sara,	*Champaign,*	Library, L. and A.
Moore, Claude Bliss,	*Kankakee,*	Electrical Eng'g.
Mount, Madison Hoge,	*Walnut Prairie,*	Mechanical Eng'g.
Myers, Wynne,	*Champaign,*	Library, L. and A.

Nabstedt, Frederick,	*Davenport, Ia.,*	Electrical Eng'g.
Newbold, Theodore Aubrey,	*Joliet,*	Mechanical Eng'g.
Norris, Carter,	*Farmer City,*	General, L. and A.
Odell, Rena May,	*Morrison,*	Classical.
Omer, Lewis,	*Clayton,*	Math. and Physics.
Oyen, Albert Nelson,	*Chicago,*	Natural Science.
Park, William Mansfield,	*Urbana,*	Civil Engineering.
Parker, Lawrence Gilbert,	*Toluca,*	Civil Engineering.
Petersen, Christian Peter Lauritz,	*Roskilde, Denmark,*	Civil Eng'g.
Plant, Francis Benjamin,	*Texas City, Texas,*	Chemistry.
Poor, Edwin Lindsay,	*Streator,*	Natural Science.
Post, Hiram Franklin,	*Rock Rapids, Ia.,*	Electrical Eng'g.
Ranson, Clara Ann,	*Havana,*	General, L. and A.
Read, Edgar Newton,	*Urbana,*	Chemistry.
Reasoner, Clara Beck,	*Seymour,*	Natural Science.
Reeves, George I,	*Wauponsee,*	Natural Science.
Richardson, Robert Earl,	*Shipman,*	Classical.
Richey, John Jefferson,	*Polo,*	Natural Science.
Riley, Anna Bethiar,	*Urbana,*	Library, L. and A.
Rolfe, Susie Farley,	*Champaign,*	Natural Science.
Rose, Alice,	*Oak Park,*	Library, L. and A.
Rose, Fred Wayland,	*Mazon,*	Electrical Eng'g.
Salb, Albert,	*Elgin,*	General, L. and A.
Samson, Charles Leonard,	*Urbana,*	Mechanical Eng'g.
Samson, George Roy,	*Urbana,*	General, L. and A.
Sawyer, Donald Hubbard,	*Oak Park,*	Municipal Eng'g.
Sawyer, George Loyal,	*Oak Park,*	General, L. and A.
Schulte, Mabel,	*Hopedale,*	General, L. and A.
Schumacher, Tillie Joe,	*Champaign,*	General, L. and A.
Schutt, Alfred George,	*Belleville,*	Electrical Eng'g.
Schwartz, Albert John,	*Dallas City.*	Civil Engineering.
Shawhan, William Warren,	*Champaign.*	Civil Engineering.
Shimmin, Robert Philip,	*Rockford,*	Mechanical Eng'g.
Sims, Mrs. Flora Morris,	*Urbana,*	Art and Design.
Smith, Ellen Garfield,	*Chicago,*	Library.
Snodgrass, John McBeath,	*Chicago,*	Mechanical Eng'g.
Stanley, Otis Orion,	*Champaign,*	Natural Science.
Stedman, Jeannette,	*Champaign,*	Music.
Steely, George,	*Danville,*	General, L. and A.
Steinmayer, Otto Christopher,	*LaSalle,*	Applied Chem. and Eng'g.
Storms, Mabel Moore,	*Fairport, N. Y.,*	Library, L. and A.

Stubbins, Lewis Clark,	*Mattoon,*	Civil Engineering.
Sussex, James Wolfe,	*Abingdon,*	Civil Engineering.
Switzer, Ernest Absalom,	*Farina,*	Agriculture.
Taylor, Dalla Alice,	*Hayes,*	General, L. and A.
Taylor, John Arlo,	*Hayes,*	Math. and Physics.
Thompson, Frank Linn,	*Champaign,*	General, L. and A.
Thompson, McDonald,	*Isabel,*	Civil Engineering.
Thompson, Risty Melroy,	*Newman,*	Mechanical Eng'g.
Todd, Mary Estelle,	*Syracuse, N. Y.,*	Library.
Tuthill, Lewis Butler,	*Anna,*	General, L. and A.
Updike, Hector,	*Belleville,*	Electrical Eng'g.
Vance, Edna Cecilia,	*Edwardsville,*	Library, S.
Vandeventer, Lloyd Thomas,	*Mt. Sterling,*	Classical.
VanMeter, George William,	*Washington,*	Architecture.
Vognild, Enoch Martin,	*Chicago,*	Natural Science.
Wallace, Jacob H,	*Altamont,*	Mechanical Eng'g.
Waterbury, Leslie Abram,	*Polo,*	Civil Engineering.
Wendell, Francis George,	*New Holland,*	Civil Engineering.
Western, Irving Mark,	*Dundee,*	Philosophy, L. and A.
White, James Dunwell,	*Taylorville,*	General, L. and A.
White, William Elmer,	*Pana,*	Natural Science.
Whitehouse, Edith Ursula,	*Canton,*	Classical.
Whitson, Milton James,	*Davenport, Ia.,*	Architecture.
Wilkins, Marion Isabel,	*Urbana,*	Library, L. and A.
Wilkinson, Nathan,	*Emporia, Kas.,*	Electrical Eng'g.
Williams, Elrick,	*Illiopolis,*	Chemistry.
Wilson, Thomas,	*Caledonia.*	Electrical Eng'g.
Wolff, Solomon,	*El Paso, Texas,*	Electrical Eng'g.
Wolleson, Herbert Henry,	*Belleville,*	Architectural Eng'g.
Zarley, William Hadsall,	*Joliet,*	Civil Engineering.

FRESHMEN

Allen, Mae Louise,	*Champaign,*	General, L. and A.
Anderson, Mary,	*Macon,*	General, L. and A.
Apple, Charles,	*Palestine,*	Civil Engineering.
Armington, Maude Allen,	*Lincoln,*	General, L. and A.
Armstrong, Gertrude Maud,	*Champaign,*	General, L. and A.
Atwood, James Thomas,	*Rockford,*	Civil Engineering.
Bagby, John Walker,	*Rushville,*	General, L. and A.
Baker, Howard Newell,	*Champaign,*	Natural Science.
Baker, Nettie S,	*Morrison,*	Library, L. and A.

Barker, Perry,	*Rochelle,*	Chemistry.
Baumberger, Harry Nicholas,	*Greenville,*	Civil Engineering.
Bean, Clarence Herbert,	*Rock Falls,*	Ap. Chem. and Eng'g.
Bear, Ernest,	*Bearsdale,*	Civil Engineering.
Belknap, Henry Wales,	*Elgin,*	Mechanical Eng'g.
Benefiel, Wenona Epps,	*Mattoon,*	Math. and Physics.
Bennett, Stella,	*Irene,*	General, L. and A.
Bigelow, Charles Albert,	*Champaign,*	Mechanical Eng'g.
Bishop, Mahlon Lyle,	*LeRoy,*	General, L. and A.
Blackburn, Joe Romine,	*Danville,*	Mechanical Eng'g.
Blanchard, Nathaniel Pearce,	*Urbana,*	Architecture.
Block, Edgar William,	*Sidney,*	Civil Engineering.
Booker, Helen Ethel,	*Champaign,*	General, L. and A.
Boudinot, Eugene Stimson,	*Danville,*	Municipal Eng'g.
Breen, Vivian Mabel,	*Danville,*	Natural Science.
Breitstadt, John Henry,	*Quincy,*	Applied Chem. and Eng'g.
Briggs, Edwin Cressy,	*Rockford,*	Mechanical Eng'g.
Brittin, Edward Bayliss,	*Cantrall,*	Natural Science.
Brittin, Fred,	*Cantrall,*	Natural Science.
Browder, Olin Lorraine,	*Mt. Vernon,*	General, L. and A.
Bruce, Robert Charles,	*Joliet,*	Mechanical Eng'g.
Brundage, Martin Dennan,	*Malta,*	General, L. and A.
Bryant, Arthur Warren,	*Princeton,*	Agriculture.
Buell, Edward Thomas,	*Chicago,*	Electrical Eng'g.
Buerkin, Emma,	*Quincy,*	General, L. and A.
Burkhalter, Wayne Edison,	*Peoria,*	Civil Engineering.
Burnett, Roland,	*N. Harvey,*	Mechanical Eng'g.
Burrill, Lettie Evelyn,	*Kansas City, Mo.,*	Gen., L. and A.
Burrill, Mildred Ann,	*Urbana,*	General, L. and A.
Cabanis, Rena Clark,	*Kinmundy,*	Civil Engineering.
Caddick, Sadie Thelma,	*Quincy,*	General, L. and A.
Campbell, Daisy Irene,	*Champaign,*	General, L. and A.
Canmann, Harry Louis,	*Chicago,*	Civil Engineering.
Carr, Earl Henry,	*DuQuoin,*	General, L. and A.
Carson, Francis Thomas,	*Urbana,*	Natural Science.
Carter, John Flint, Jr.,	*Pana,*	Chemistry.
Cayou, Francis Mitchell,	*Decatur, Neb.,*	Electrical Eng'g.
Chacey, Anna Olive,	*Hillsboro,*	General, L. and A.
Chapman, Daniel Ward,	*Vienna,*	General, L. and A.
Clark, Lorin,	*St. Joseph,*	Natural Science.
Clark, Matilda Lenna,	*Elvaston,*	Natural Science.

Clark, Thomas Aquilla,	*Urbana,*	Electrical Eng'g.
Clayton, Clark Mensch,	*Dixon,*	Municipal Eng'g.
Clinton, Anna Lucile,	*Polo,*	Library, L. and A.
Cobb, Scott Ewing,	*Galesburg,*	Architecture.
Cook, James Fitchie,	*Dundee,*	Mechanical Eng'g.
Creelman, Charles Clarence,	*Cairo,*	Electrical Eng'g.
Custer, Bertha Mae,	*Streator,*	General, L. and A.
Dake, LeRoy Gilbert,	*Harvard,*	General, L. and A.
Dalbey, Dwight Stout,	*Taylorville,*	Agriculture.
Dallenbach, J C,	*Champaign,*	Natural Science.
Davis, Cleon Leslie,	*Mt. Zion,*	Civil Engineering.
Dayton, Laura,	*Paris,*	Music.
Delzell, Mayo Alexander,	*Robinson,*	Mechanical Eng'g.
Dolkart, Leo,	*Chicago,*	Electrical Eng'g.
Doud, Willard Orrin,	*Chicago,*	Mechanical Eng'g.
Doyle, Kate Laley,	*Champaign,*	General, L. and A.
Drake, Jeannette Mae,	*Decatur,*	General, L. and A.
Drury, Ralph Southward,	*New Boston,*	Mechanical Eng'g.
Duffy, James Franklin, Jr.,	*Chicago,*	Electrical Eng'g.
Dunshee, Vernon Amasa,	*Mt. Carroll,*	Natural Science.
Eckstorm, Harold,	*Chicago,*	Mechanical Eng'g.
Edwards, Charles,	*Peru,*	Chemistry.
Edwards, George Isaac,	*Amboy,*	General, L. and A.
Elder, Bessie Marie,	*Topeka, Kas.,*	Music.
Elliott, Julia Erricsson,	*Grand Rapids, Mich.,*	Library.
Etherton, William Alonzo,	*Carbondale,*	Architectural Eng'g.
Fiske, Clarence Wilson,	*Sterling,*	General, L. and A.
Fletcher, Carl Joshua,	*Galesburg,*	Electrical Eng'g.
Fogg, Alma Jessie,	*Wenona,*	Natural Science.
Folckemer, Harry Rox,	*Camp Point,*	Natural Science.
Forbes, Marjorie Douglas,	*Urbana,*	General, L. and A.
Frank, Louis Harry,	*Chicago,*	Electrical Eng'g.
French, Maurice Deen,	*Danville,*	Electrical Eng'g.
Gale, Eli Pike,	*Aurora,*	Chemistry.
Garnett, Elmer Logan,	*St. Mary,*	Classical.
Garver, Lewis Cormany,	*Rockford,*	Civil Engineering.
Garver, Willia Kathryn,	*Bloomington,*	General, L. and A.
Gearhart, John Daniel,	*Farmer City,*	Natural Science.
Gibbs, Charlotte Mitchell,	*Riverton,* Ky.,	General, L. and A.
Gibbs, Elizabeth Hayward,	*Riverton, Ky.,*	Music.
Gilkerson, Frances Emeline,	*Urbana,*	General, L. and A.

Gorham, Josiah,	*Champaign,*	Chemistry.
Green, Charles Henry,	*Sterling,*	Electrical Eng'g.
Griffin, Mrs. Edith,	*Urbana,*	Natural Science.
Habermeyer, George Conrad,	*Aurora,*	Civil Engineering.
Haight, Samuel John, Jr.,	*Mendota,*	Agriculture.
Harney, Charles Jones,	*Henry,*	Civil Engineering.
Harrington, Theodore G,	*Delavan,*	Natural Science.
Harris, Thaddeus Sidney,	*Modesto,*	Natural Science.
Harrison, Edwin Warren,	*Princeton,*	Municipal Eng'g.
Harroun, George Levant,	*Crescent* City,	Political Science.
Hatch, Walter Ray,	*Goshen, Ind.,*	Civil Engineering.
Heath, Lillian,	*Whiteheath,*	General, L. and A.
Hedges, Ida Belle,	*Urbana,*	General, L. and A.
Henderson, Mary,	*Cedar Rapids, Ia.,*	Lib., L. and A.
Herman, Edward Elmer,	*Waukegan,*	Electrical Eng'g.
Higgins, Charles Huntington,	*Quincy,*	Chemistry.
Higgins, Francis Whitson,	*Chicago Heights,*	Applied Chem. and Eng'g.
Hodge, Mrs. Harriet Evans,	*Cincinnati, Ohio,*	Library.
Holderman Marjorie Campbell,	*Urbana,*	General, L. and A.
Holmes, Alfred Edwin,	*Bradford,*	Civil Engineering.
Hook, Isaac Herschel,	*Vienna,*	Civil Engineering.
Hubbard, Mae Woodworth,	*Urbana,*	Music.
Humphrey, Ralph Charles,	*LeRoy,*	Civil Engineering.
Hunter, Charles Phelps,	*Newton, Ia.,*	General, L. and A.
Huntoon, John Samuels,	*Moline,*	Civil Engineering.
Hutchison, Owen Ghormley,	*Clarence,*	Natural Science.
Hynes, Olive Frances,	*Quincy,*	General, L. and A.
Ireland, Washington Parker,	*Chicago,*	Civil Engineering.
Jacobs, Manuel Joseph,	*Chicago,*	Civil Engineering.
James, Harry Denning,	*Amboy,*	General, L. and A.
James, Lee Roy,	*Beardstown,*	Mechanical Eng'g.
Jefferson, Roy Trend,	*Springfield,*	Mechanical Eng'g.
Johnson, Albert Myron,	*Kishwaukee,*	Electrical Eng'g.
Johnson, David Crawford,	*Chicago,*	Chemistry.
Johnson, William Chance,	*Champaign,*	General, L. and A.
Jones, J Claude,	*Chicago,*	Civil Engineering.
Keating, Jennie,	*Champaign,*	General, L. and A.
Kerns, Rillis,	*Champaign,*	General, L. and A.
King, Louis Blume,	*Champaign,*	General, L. and A.
Kirkpatrick, Hugh Granville,	*Virden,*	Electrical Eng'g.

Kissinger, Herman Dick,	*Quincy,*	Natural Science.
Koogler, Frank S.	*Champaign,*	General, L. and A.
Kuss, Robert Hayden,	*Peoria,*	Mechanical Eng'g.
Lautz, Walter Ernest,	*Pekin,*	Mechanical Eng'g.
LeSourd, Alfred Curtis,	*Topeka,*	Civil Engineering.
Linder, Grace,	*Charleston,*	Natural Science.
Lindsay, Mabel,	*Champaign,*	General, L. and A.
Love, Leila Sara,	*Danville,*	Latin and Mod. Lang.
Luther, Otto Lawrence,	*Quincy,*	Classical.
McCormick, Cora B,	*Streator,*	General, L. and A.
McCracken, George Milas,	*Pana,*	Architecture.
McFarland, James Albert,	*Mendota,*	Chemistry.
McGinnis, Cora Nell,	*Dawson,*	General, L. and A.
McIntosh, Kathryn Eleanor Annie,	*Champaign,*	General, L. and A.
McKenzie, Eva Mabel,	*Vienna,*	General, L. and A.
McMurray, Karl Franklin,	*Normal,*	General, L. and A.
McVay, Camden Jacob,	*Champaign,*	Mechanical Eng'g.
Mann, Alice Calhoun,	*Danville,*	General, L. and A.
Marsh, George Requa,	*Marseilles,*	General, L. and A.
Matthews, Frederick Webster,	*Carlinville,*	Electrical Eng'g.
Mayer, Elmer Benjamin,	*Mt. Pulaski,*	General, L. and A.
Melby, James Alexander,	*Chicago,*	Architectural Eng'g.
Mattis, Julia Rebecca,	*Champaign,*	General, L. and A.
Miller, Lulu Mae,	*Champaign,*	General, L. and A.
Moran, Mark Asher,	*Canton,*	Electrical Eng'g.
Morehead, Mrs. Pansy Blossom,	*Champaign,*	General, L. and A.
Morgan, Stella Webster,	*Burlington, Ia.,*	General, L. and A.
Morrow, Nelson C,	*Rockford,*	Natural Science.
Munsen, Andrew,	*Henry,*	Civil Engineering.
Noble, Thomas,	*Urbana,*	Agriculture.
Parker, Roy Sheldon,	*Toluca,*	Political Science.
Pilcher, Lela Gretchen,	*Streator,*	Mathematics, S.
Piper, Ellsworth Elmer,	*Chicago,*	Electrical Eng'g.
Platt, Alfred,	*Decatur,*	Natural Science.
Pollard, Charles Robert,	*Delphi,*	General, L. and A.
Prater, Banus Hutson,	*Decatur,*	Civil Engineering.
Preston, Oscar Melvon,	*Allenville,*	Mechanical Eng'g.
Price, John Ray,	*Danville,*	General, L. and A.
Quayle, Henry Joseph,	*Bondville,*	Natural Science.
Rhoads, Albert Carlton,	*Champaign,*	Mechanical Eng'g.
Rightor, Fred Elmer,	*Rockford,*	Civil Engineering.

Robinson, Nellie Maude,	*Champaign,*	General, L. and A.
Robison, Lyle,	*Kewanee,*	Political Science.
Rose, L Vernon,	*Mattoon,*	General, L. and A.
Russell, William Cissna,	*Milford,*	Civil Engineering.
Rutt, Roy Weaver,	*Sterling,*	Mechanical Eng'g.
Sauer, Alfred Henry,	*Morrison,*	General, L. and A.
Schacht, John Henry,	*Moline,*	Architecture.
Scott, Troy Alexander,	*Bethany,*	General, L. and A.
Scudder, Harry Disbro,	*Chicago,*	Agriculture.
Seymour, Budd Willard,	*Dwight,*	Civil Engineering.
Sheldon, Maude Lillian,	*Sharpsburg,*	Natural Science.
Sheldon, Victor Lorenzo,	*Taylorville,*	Mechanical Eng'g.
Shoemaker, John Earl,	*Charleston,*	General, L. and A.
Siler, Roderick William,	*Chicago,*	Civil Engineering.
Simpson, Carl William,	*Quincy,*	Civil Engineering.
Skinner, Elgie Ray,	*Champaign,*	Mechanical Eng'g.
Smith, Charles Ernest,	*Rossville,*	Agriculture.
Smith, Roy,	*Colusa,*	General, L. and A.
Snyder, Elizabeth Vemba,	*Moweaqua,*	Natural Science.
Sparks, Annie Elnora,	*Urbana,*	Classical.
Stansbury, Alta Louise,	*Cedar Rapids, Ia.,*	Gen., L and A.
Steinwedell, Carl,	*Quincy,*	Chemistry.
Stevens, James Franklin,	*Waverly,*	Civil Engineering.
Stevens, Lucia Alzina,	*Marengo,*	General, L. and A.
Stewart, Robert Jacques,	*Urbana,*	Mechanical Eng'g.
Stocking, Lena Keefer,	*Morrison,*	General, L. and A.
Street, Marietta Louisa,	*Dixon,*	Library, L. and A.
Stuebe, Leonard Fred,	*Danville,*	Architecture.
Taylor, Charles Roy,	*Champaign,*	Mechanical Eng'g.
Tenney, Charles Frederick, Jr.,	*Bement,*	Natural Science.
Trotter, Jessie Elizabeth,	*Champaign,*	General, L. and A.
Varnes, Albert Grafton,	*Farmington,*	Civil Engineering.
Wadsworth, Albert Monroe,	*Chicago,*	Civil Engineering.
Wagy, Alva Leon,	*Champaign,*	Natural Science.
Waldorf, Arthur Louis,	*Mendota,*	Civil Engineering.
Wasson, Ora Elmer,	*Chrisman,*	Chemistry.
Webber, Pearl,	*Urbana,*	General, L. and A.
Wells, Fred Mason,	*Moline,*	Agriculture.
Wernham, George Titus,	*Marengo,*	Natural Science.
Westhold, Hannah Amanda,	*Marblehead,*	General, L. and A.
Wetherbee, Ella Dora,	*Sterling,*	General, L. and A.

Whitham, Paul Page,	*Olympia, Wash.,*	Mech. Eng'g.
Whitsitt, Hammond William,	*Preëmption,*	Architecture.
Williams, Simon,	*Illiopolis,*	General, L. and A.
Wilson, Joseph Wade,	*Moline,*	Architecture.
Winders, Charles Henry,	*Aledo,*	Political Science.
Woodmansee, Ralph Collum,	*Champaign,*	Electrical Eng'g.
Woodworth, Metta Edna,	*Champaign,*	General, L. and A.
Worsdell, Arthur Eleazar,	*Vermont,*	Civil Engineering.
Zangerle, Arthur Norman,	*Chicago,*	Chemistry.
Zartman, Lester William,	*Grant Park,*	Natural Science.
Zilly, Alice Rachel,	*Champaign,*	General, L. and A.

SPECIALS

Ainsworth, Frances Lois,	*Champaign,*	Music,
Anderson, Emile Ephraim,	*Paxton,*	Natural Science.
Anderson, Florence Marion,	*Mahomet,*	Music.
Arnett, Mrs. Agnes Leona,	*Champaign,*	Music.
Arnold, Forest Jackson,	*Bloomington,*	Electrical Eng'g.
Arnold, William Wright,	*Robinson,*	General, L. and A.
Azbill, Ethel Wolcott,	*Indianapolis, Ind.,*	Lib., L. and A.
Bailey, Belle,	*Champaign,*	Music.
Ballard, Hortense,	*New Boston,*	Music.
Bear, Ida Pauline,	*Ludlow,*	Art and Design.
Beers, Kenneth Fitch,	*Harvey,*	General, L. and A.
Bennett, Jennie May,	*Belvidere,*	Music.
Biebinger, Marguerite,	*Milmine,*	General, L. and A.
Bonnell, Everett Shannon,	*Lamoille,*	Electrical Eng'g.
Bruce, Frances Maude,	*Milwaukee, Wis.,*	Gen., L. and A.
Burch, Leslie,	*Decatur,*	Architecture.
Caldwell, Charles McGlumphy,	*New Holland,*	General, L. and A.
Carleton, Mabel Grace,	*Hillsdale, Mich.,*	Gen., L. and A.
Carr, Maurice LeRoy,	*Avon,*	Electrical Eng'g.
Carter, Ira Calvin,	*St. Charles, Minn.,*	Architecture.
Cartlidge, Harry Brayford,	*Gillespie,*	General, L. and A.
Chapman, Mrs. Mae,	*Vienna,*	General, L. and A.
Cline, James Stanley,	*Litchfield,*	General, L. and A.
Conard, Philip Arthur,	*Monticello,*	General, L. and A.
Coffman, Jessie Elizabeth,	*Champaign,*	Music.
Conley, John Edward,	*Arcola,*	Civil Engineering.
Cooper, Annetta Belle,	*Normal,*	General, L. and A.
Coultas, Allie,	*Merritt,*	Natural Science.

Coyle, John Frank,	*Penfield,*	General, L. and A.
Crathorne, Annie Ellen,	*Champaign,*	General, L. and A.
Craw, Nellie Edna,	*Sadorus,*	Music.
Crawford, George Barnes,	*Champaign,*	Music.
Draper, Charlotte Leland,	*Urbana,*	Music.
Dugan, Earl N,	*Perry, Ia.,*	Architecture.
Dunlap, Affa Emogene,	*Aurora,*	Music.
Ealey, Minnie,	*Urbana,*	Music.
Edwards, Grace Osborne, B.L.S., 1898,	*Urbana,*	Economics.
Eisenmayer, Herman Andrew,	*Trenton,*	Electrical Eng'g.
Finley, Sallie,	*Houstonia, Mo.,*	Library, L. and A.
Flanigan, Bessie Maria,	*Champaign,*	Music.
Fleming, Marcella Augusta,	*Bement,*	Music.
Ford, Ralph Leo,	*Lewistown,*	Mechanical Eng'g.
Foreman, Herbert Spencer,	*Whitehall,*	Natural Science.
Frazier, Elmer Allen,	*Champaign,*	General, L. and A.
Frazier, James William,	*Bushton,*	Natural Science.
Fretz, Mrs. Jewel Camp,	*Tolono*	General, L. and A.
Gallatin, Cyrus Ellis,	*Martinsville,*	Political Science.
Garden, Henry Rhiel,	*Joliet,*	Civil Engineering.
Garwood, Mabel Clare,	*Augusta,*	General, L. and A.
George, Sedella May,	*Champaign.*	Art and Design.
Gere, Clara,	*Champaign,*	Music.
Gilbert, John Philo,	*Mt. Vernon.*	Natural Science.
Gillespie, Mrs. Clara Bell,	*Champaign,*	Music.
Gold, Katharine Eaton,	*Chicago,*	Library, L. and A.
Gray, John,	*Urbana,*	Political Science.
Grevenkamp, Herman Henry,	*Quackenbruch, Germany,*	Natural Science.
Hanson, Gertrude Lucie,	*Urbana,*	Library, L. and A.
Harris, Mrs. Marie Augusta,	*Burlington, Ia.,*	General, L. and A.
Harris, Phil Baker,	*Quincy,*	Mechanical Eng'g.
Haussler, Dwight Francis,	*Centralia,*	General, L. and A.
Hauter, Andrew Edgar,	*Tiskilwa,*	Political Science.
Hauter, Joseph Elmer,	*Tiskilwa,*	General, L. and A.
Henry, Rev. William Warner,	*Urbana,*	Political Science.
Higbee, Lulu Mae,	*Whitehall,*	General, L. and A.
Holder, Vernon Milner,	*Normal,*	Architectural Eng'g.
Ice, Laura Frances,	*Gifford,*	Music.
Ingersoll, Frank Bruce,	*Chicago,*	Electrical Eng'g.

Johnson, Lottie Catherine,	*Morrison,*	Art and Design.
Jones, Isabel Eliza,	*Champaign,*	Music.
Kemp, George Theophilus, M.D., Ph.D.	*Champaign,*	Music.
Knowlton, William David,	*Onarga,*	Natural Science.
Kuhl, Cora,	*Champaign,*	Music.
Larrison, George Kirkpatrick,	*Havana,*	Civil Engineering.
Latzer, Alice Bertha,	*Highland,*	Natural Science.
Laughlin, Lulu Lillian,	*Decatur,*	General, L. and A.
Leas, Elmer Edwin,	*Stone Bluff, Ind.,*	Agriculture.
Lee, Kittie Grace,	*Homer,*	Music.
Leney, Flora Estelle,	*Grant, Neb.,*	General, L. and A.
Lewis, McCreary,	*Denver, Colo.,*	Electrical Eng'g.
Lindsey, Maud Neva,	*Urbana,*	Art and Design.
Linzee, Ray Smith,	*DuQuoin,*	General, L. and A.
Loeffler, Katherine Armine,	*Ogden,*	Music.
McCollom, James Porter,	*Carthage,*	Architecture.
McIntosh, Mabel Charlotte Urguhart,	*Champaign,*	Music.
McLeod, Irene M,	*Philo,*	Music.
Mann, Margaret,	*Champaign,*	General, L. and A.
Manning, Lewis LeRoy,	*St. Louis, Mo.,*	Architecture.
Marriott, Henry Bowen,	*Urbana,*	Agriculture.
Miller, Fred Charles,	*Peoria,*	Architecture.
Miller, Horner Hanford,	*Bismarck,*	Natural Science.
Milne, David Haxton,	*Cairo,*	Art and Design.
Mitchell, John Austin,	*Denver, Colo.,*	Architecture.
Moore, Lucy Kate,	*Pesotum,*	Music.
Müller, Jacob William,	*Belleville,*	Electrical Eng'g.
Nash, Benjamin Franklin, Jr.,	*Champaign,*	Music.
Needham, John Lowry,	*Neoga,*	Natural Science.
O'Hair, Zella,	*Indianapolis, Ind.,*	Gen., L. and A.
Oliver, Mrs. Etta,	*Champaign,*	Music.
Outhouse, Fred Myrine,	*Lily Lake,*	General, L. and A.
Parks, Margaretta,	*Danville,*	Art and Design.
Payne, Lena Venice,	*Potomac,*	Music.
Payne, Rinnie Camille,	*LeRoy,*	Music.
Pittman, Claude Earnest,	*Mahomet,*	Mechanical Eng'g.
Praeger, Mrs. Fanny Birge,	*Urbana,*	Music.
Quirk, Elizabeth,	*Champaign,*	Music.
Ratcliff, Harry Eber,	*Vincennes, Ind.,*	Architecture.

Reed, Mrs. Adele Cooper,	*Paxton,*	Library.
Reed, Alice Elizabeth,	*Urbana,*	Art and Design.
Round, George Arminius,	*Sterling,*	Mechanical Eng'g.
Schillinger, Josephine,	*Moline,*	General, L. and A.
Seibert, Emma Effie, B.S., 1891,	*Champaign,*	Art and Design.
Seymour, Roy Vincent,	*Dwight,*	Political Science.
Shinker, Lillian Ruth,	*Ludlow,*	Music.
Smick, Mary Ella,	*Athens,*	Music.
Spink, Charles Raymond,	*Davenport, Ia.,*	Architecture.
Spriggs, John,	*Louisville,*	General, L. and A.
Stewart, John Hardin,	*Exeter,*	Natural Science.
Stoolman, Myrtle Loa,	*Champaign,*	Natural Science.
Straight, Maude Wheeler, A.B., *(Wellesley)*, 1892,	*Champaign,*	Economics.
Stratton, Isaac Henry,	*Toulon,*	Natural Science.
Stuttle, Harry Conrad,	*Litchfield,*	General, L. and A.
Sutton, William D,	*Urbana,*	Art and Design.
Swanberg, Floyd Ludwig,	*Danville,*	Mechanical Eng'g.
Tallman, Eugene Dwight,	*Comanche, Ia.,*	Electrical Eng'g.
Thompson, George Palmer,	*Steward,*	General, L. and A.
Thompson, Gertrude,	*Champaign,*	Music.
Thordenberg, Fred Moses,	*Rock Island,*	Architecture.
Tillotson, Mabel,	*Kinder, La.,*	Art and Design.
Todd, Ernest Whitman,	*Berea, Ky.,*	Chemistry.
Tucker, Walter Clifton,	*Brimfield,*	Electrical Eng'g.
Turner, Edwin Calvert,	*Menlo, Kan.,*	General, L. and A.
VanDevort, Paul Raymond,	*Tiskilwa,*	Political Science.
VanMatre, Josephine Mary,	*Philo,*	Music.
Wagoner, Minnie May,	*Elliott*	Music.
Wells, Mrs. Winthrop Selden,	*Urbana,*	General, L. and A.
Wells, Arthur Fred,	*Chicago.*	Architectural Eng'g.
Whitaker, George Hall,	*Davenport, Ia.,*	Agriculture.
White, Leila,	*Fairmount,*	General, L. and A.
Wilcox, Frances Madge,	*Champaign,*	Music.
Williamson, Josephine Huldah,	*Champaign,*	Music.
Wolf, Arthur Alfred,	*Farina,*	Electrical Eng'g.
Wolford, Maud Blackwell, A.B., *(Wilmington Coll.)*,	*Danville,*	General, L. and A.
Yates, Irving Brown,	*Dunlap,*	Mechanical Eng'g.

SPECIALS IN AGRICULTURE—(P. 54)

Basting, Ferdinand Joseph,	*Yuton.*
Beall, Allen Lloyd,	*Stronghurst.*
Beckemeyer, John George,	*Buxton.*
Bennett, Samuel Augustus,	*Belvidere.*
Bernhard, Susanna Sybil,	*Shumway.*
Bonnell, William Lee,	*Elondale.*
Brown, Clyde Edward,	*Rushville.*
Coleman, Clyde Bestor,	*New Windsor.*
Dickson, Rolland Oscar,	*Disco.*
Dorsey, Clarence Benson,	*Moro.*
Eckhardt, William George,	*Buffalo Prairie.*
Eidmann, Gustav Herman,	*Mascoutah.*
Endicott, Robert Burns,	*Villa Ridge.*
Ewald, John Jacob,	*Belmont.*
Fairchild, Sherman DeWitt,	*Tower Hill.*
Fessant, Francis John,	*Sandford, Ind.*
Finch, Jesse Piatt,	*Verona.*
Finley, Joseph Orton,	*Oneida.*
Genseke, Edward William,	*Streator.*
Geuther, Edward Lawrence,	*Frankfort Station.*
Greer, Owen Jackson,	*Rushville.*
Hacker, George,	*Golconda.*
Hendrick, Lewis Carlton,	*Milledgeville.*
Hermann, Ernest Meier,	*Woodworth.*
Hopps, Clifford Crossman,	*Lamoille.*
Hopps, Stephen Arthur,	*Lamoille.*
Howard, Wallace Lawton,	*Sheffield.*
Howell, Carrie Barnes,	*Urbana.*
Huson, George Tyler,	*Ft. Hill.*
Jenkins, Elbert Arthur,	*Tower Hill.*
Jordan, James Menzo,	*Savoy.*
Judd, Herbert Ray,	*Wenona.*
Ladage, Fred William,	*Woodside.*
Laughead, Charles Walter,	*Flat Rock.*
Leas, Ernest Orr,	*St. Joseph.*
Lloyd, Robert Clinton,	*Canton.*
McWard, Robert Amel,	*Palmer.*
Marks, David Scott,	*Abingdon.*
Meatheringham, John Ellsworth,	*Camp Point.*

Mills, Ernest Benjamin,	*Mt. Palatine.*
Montgomery, William Henry,	*Aledo.*
Null, Samuel Franklin,	*Blandinsville.*
Oakes, Arthur Manning,	*Metropolis.*
Pease, Clarence Everett,	*Cisco.*
Richardson, George Mayo,	*Williamsville.*
Riordon, Charles B,	*Garden Plain.*
Sandquist, William Andrew,	*Victoria.*
Scanlan, Francis Whisler,	*Avon.*
Schuppel, Henry Charles,	*Barclay.*
Scott, Philip Collins,	*Kempton.*
Simonson, Rollo Jacob,	*White Oak.*
Stearns, Fred Carless,	*Mahomet.*
Stocks, Harry Blaine,	*Eleroy.*
Stone, Walter W,	*Mason City.*
Temple, Ralph William,	*Elida.*
Thompson, Albert Augustus,	*Norris City.*
Thompson, Clarence,	*Champaign.*
Viall, Frank Lester,	*Manteno.*
Virgiel, Louis,	*Ellsworth.*
Wade, Albert Edward,	*Decatur.*
Walcher, Charles Edwin,	*Millersville.*
Wampler, Edgar Allen,	*Hammond.*
Widney, George Jay,	*White Willow.*
Wierman, Charles Louis,	*Lostant.*
Wolf, Edd,	*Farina.*
Worthen, Edmund Louis,	*Warsaw.*

SUMMER TERM—(P. 167)

Ashley, Harriet Elizabeth,	*Urbana.*
Bachman, Jacob,	*Mascoutah.*
Barnett, Daniel Emmett,	*Sidell.*
Bartel, Emilie,	*Belleville.*
Basset, Herbert,	*Yorkville.*
Baymiller, Claire Bell,	*Abingdon.*
Beall, Mattie I,	*Tuscola.*
Beinlich, Bernhard August,	*Barrington.*
Bell, Arthur Timothy,	*Azotus.*
Bennett, Ruth, A.B., 1899,	*Urbana.*
Birney, Thomas M.,	*Normal.*
Bliss, Anson Lee, A.B., *(Austin Coll.)*, 1895,	*Anna.*
Boggs, Cassandra Armstrong, B.L., 1892,	*Urbana.*

Bolton, Ralph Waldo,	*Alpha.*
Borton, Byron Sarver,	*DeLand.*
Boyes, Walter Franklin,	*Yates City.*
Briggs, Claude Porter,	*Minier.*
Brown, Richard Alva,	*Loogootee, Ind.*
Brown, Samuel Addison,	*Long View.*
Buchanan, Bessie Belle,	*Peoria.*
Buchanan, James William,	*Charleston, Ind.*
Buell, Fred Allen,	*Ridge Farm.*
Calhoun, Henrietta Anne,	*Champaign.*
Cambridge, Thomas E.	*Urbana.*
Campbell, William Stewart,	*Hanna City,*
Carter, Harry Clyde,	*Farmer City,*
Carter, Ira Calvin,	*St. Charles, Minn.*
Chafee, Alpha,	*Shelbyville.*
Chapman, Grace Elizabeth,	*Mattoon.*
Chapman, Mrs. Kate,	*Murphysboro.*
Clark, Cyril Balfour,	*Champaign.*
Clark, Philip Henry, A.B., 1899,	*Galena.*
Clore, Will Allen,	*Lovington.*
Coffman, George Benjamin,	*Chillicothe.*
Coley, Charles Dayton,	*Edinburg.*
Craigmile, Alexander Homer,	*Gifford.*
Crocker, William,	*Kewanee.*
Crosthwaite, George Ashley,	*Urbana.*
Daggett, Daisy Viola,	*Macon.*
Davidson, Robert Franklin,	*Decatur.*
Davis, Howard Aylesworth,	*Fisher.*
Davis, Willis Lee,	*Fisher.*
Davis, Wilmer Esta,	*Rankin.*
Derrickson, Emma Eliza,	*Wales, Ia.*
Detrick, Nellie Elizabeth,	*Champaign.*
Dickinson, Oliver Morton,	*West Liberty.*
Dillon, Elizabeth Loretta,	*LaSalle.*
Draper, Leta Leona,	*Macon.*
Dunkin, Will Van,	*Urbana.*
Dunn, Ella May,	*Paris.*
Durheim, Elizabeth,	*Paxton.*
Earl, Claude Elwood,	*Centerville.*
Eckman, John Joseph,	*Wellington.*
Edmundston, Eliza,	*Camargo.*

Elliott, James Henry,	*Fairmount.*
Enochs, Delbert Riner, A.B., 1898,	*Champaign.*
Faris, Stephen Douglas,	*Perry,*
Faulkner, Teresa Violet,	*Wyoming,*
Fenley, Anna Isabel,	*Oakland,*
Fitzgerald, Sadie Josephine,	*Ivesdale.*
Fox, Fred Gates, A.B., 1898,	*Peru.*
Gemmell, Anna Mary,	*Toulon.*
Glasco, Ella Florence,	*Urbana.*
Green, Clarence,	*Lawrenceville.*
Greer, James Richard,	*Fairmount.*
Gregory, Sue,	*Decatur.*
Gwinner, Harry,	*Baltimore, Md.,*
Hamblen, Rosa Myrtle,	*Etna,*
Hammers, Edna Rose,	*Champaign,*
Hammers, Jesse,	*Champaign,*
Hanson, Rachelle Margaret,	*Urbana.*
Hedden, Oran Robarts,	*Robinson.*
Heinzelman, Jacob Harold,	*Peoria.*
Hinkle, Ida May,	*Champaign.*
Hobson, Jennie Eva,	*Bloomington.*
Hotchkiss, Lula May,	*Hannibal, Mo.*
Howell, Carrie Barnes,	*Urbana,*
Hubbart, Guy,	*Philo.*
Hutchins, Emma Matilda,	*Pana.*
Jacobs, Manuel Joseph,	*Champaign.*
Jeffers, Granville Bond,	*Bloomington.*
Jesse, Charles,	*Toluca.*
Johnson, Ananias Parnell,	*Rantoul.*
Jones, Warren,	*Whitehall.*
Jordan, Olive Evalina,	*Fisher.*
Kerns, Harriet White,	*Champaign.*
Kimlin, Julia Isabel,	*Quincy.*
Kinzel, Josie Ethel,	*Oakland.*
Kohin, Thomas Cornelius,	*LaSalle.*
Landel, Ida Susan, A.B., 1898,	*Champaign.*
Lautz, Walter Ernest,	*Pekin.*
Law, Arba David,	*Magnolia.*
McCormick, Cora B,	*Streator.*
McGinley, William,	*Moweaqua.*
McMurry, Fred Russell,	*Normal.*

McMurtry, Isa Benona,	*Magnolia*
Magee, Andrew Jackson,	*Buda.*
Malone, James Eugene,	*LaSalle.*
Marion, Rose A,	*East St. Louis.*
Martin, James Madison, A.B., 1896,	*Pana.*
Martin, Robert William,	*Wilmington.*
Middlesworth, Florence,	*Shelbyville.*
Millar, Adam Vause, B.S., 1897,	*Champaign.*
Miller, Mary Frances,	*LaSalle.*
Moffet, Josie Carrie,	*Windsor.*
Mojonnier, Timothy,	*Highland.*
Moore, Benjamin Clay,	*LeRoy.*
Morgan, Stella Webster,	*Burlington, Ia.*
Myers, Kate Genevieve,	*Springfield.*
Otto, Albert Sydney,	*Canton.*
Otwell, Allen Meade, B.S., 1899,	*Plainview.*
Patterson, Richard Sanford,	*Loogootee, Ind.*
Pelly, John,	*Anna.*
Posey, Chessley Justin,	*Normal.*
Praeger, William Emilius,	*Keokuk, Ia.*
Preston, Frederick Grant,	*Wichita, Kan.*
Randle, Gilbert Preston,	*Shelbyville,*
Readhimer, Jerome Edward,	*Normal.*
Reid, Theophilus Augustus,	*Frankfort, Ky.*
Richardson, Francis Martin,	*Lincoln.*
Richardson, Robert Earl,	*Shipman.*
Rogers, Anna Eliza,	*Mt. Vernon.*
Schaeffer, Mary Elizabeth Medora,	*Normal.*
Schudel, Julia Elizabeth,	*Macon.*
Sherman, Anna Ella,	*Lake City.*
Smith, Clinton,	*Allendale.*
Smith, Percy Almerin,	*Dixon.*
Smith, William Walter,	*Broadlands.*
Sparks, Myrtle Eva, A.M., 1890,	*Ottawa.*
Stansbury, Etta Drucilla,	*Monica.*
Stark, Claude,	*Champaign.*
Stockton, Lalla Rookh,	*Burlington, Ind.*
Strong, John Arthur,	*Biggsville.*
Thomas, Edward Charles,	*Geneva.*
Thompson, Perry P,	*Patterson.*
Timmons, William Milton,	*Spiceland, Ind.*

Varner, Adam Henry,	*St. Joseph.*
Vetterliet, Anna Susetli,	*Decatur.*
Waits, Harmon Ebert,	*El Paso.*
Waldo, Marie L.	*Champaign.*
Watrous, Edward Palmer,	*Mapleton.*
Wendell, Francis George,	*New Holland.*
Wenz, Carrie Louise,	*Paris.*
Wheelock, Samuel Elbert,	*Tampico.*
Wilkins, Frank John,	*Groveland.*
Williams, Seymour,	*Monticello.*
Woodbridge, Mary Emily,	*Paris.*
Wright, Edith Hulda,	*Woodstock.*

SATURDAY TEACHERS' CLASS—1899-1900—(P. 169)

Barr, Belle,	*Urbana.*
Bates, Ella Agnes,	*Champaign.*
Bear, Katherine,	*Champaign.*
Boyd. Ora Ella,	*Sidney.*
Brannen, Agnes Margaret,	*Champaign.*
Busey, Carolyn,	*Urbana.*
Carroll, Josephine,	*Champaign.*
Chisholm, Eva May,	*Champaign.*
Collier, Elizabeth,	*Champaign.*
Collier, Marion,	*Champaign.*
Conaway, Hortense Grace,	*Urbana.*
Dillavon, Olive Anna,	*Champaign.*
Ewalt, Grace Esther,	*Champaign.*
Fenner, Cordelia Margaret,	*Urbana.*
Glasco, Ella Florence,	*Urbana.*
Gordon, George Oscar,	*Urbana.*
Griffith, Nellie,	*Champaign.*
Hess, Jessie Arlie,	*Urbana.*
Huey, Vergil Lyon,	*Champaign.*
Ijams, Burt Gordon,	*Urbana.*
Jayne, Nellie Matilda,	*Champaign.*
McCann, Jessie,	*Champaign.*
McCoy, Mary Elizabeth,	*Urbana.*
McLain, Annie Gertrude,	*Urbana.*
Meneely, Margaret,	*Champaign.*
Morris, Minnie Ellen,	*Champaign.*
Mulliken, Mrs. Elizabeth Elma,	*Champaign.*

Needham, John Lowry,	*Champaign.*
Porter, Alice Delle,	*Champaign.*
Pricer, Charles Aubert,	*Mahomet.*
Reynolds, Mabel,	*Urbana.*
Rhodes, Ida,	*Champaign.*
Showers, Metta Marguerite,	*Urbana.*
Sparks, George,	*Urbana.*
Stark, Amy Alberta,	*Champaign.*
Tinsley, Minnie Alice,	*Champaign.*
Treakle, Mrs. Maud Talbot,	*Champaign.*
Vandeveer, Jennie Mary,	*Urbana.*
Ware, Bertha,	*Champaign.*
Wright, Edith,	*Champaign.*
Wright, Gains Emery,	*Champaign.*
Young, Harry Harrison,	*Bondville.*

COLLEGE OF LAW

THIRD YEAR

Adams, Otto C,	*Cerro Gordo.*
Baker, Zion Frost,	*Sullivan.*
Barrett, George Francis,	*Chicago.*
Boyd, Hobart Sherman,	*Lewistown.*
Cooper, Fred Worth,	*Champaign.*
Dolan, William John,	*Ohio.*
Doney, Oliver Kinsey,	*Urbana.*
Dougherty, Horace Raymond, A.B., *(Univ. of Chicago)*, 1896,	*Peoria.*
Fulton, William John, A.B., 1898,	*Hartford City, Ind.*
Glenn, Leslie Leland,	*Champaign.*
Glenn, Otis Ferguson,	*Champaign.*
Grossberg, Harry Altman,	*Chicago.*
Kennard, Perry Garst,	*Champaign.*
Ketchum, Margaret Adele,	*LaPrairie.*
McCartney, William Priestly, B.S., 1893,	*Champaign.*
May, Fred Hutchinson,	*Prophetstown.*
Mulliken, Albert Danforth,	*Champaign.*
Ostrowski, Samuel,	*Chicago.*
Rhodes, Edward Melvin,	*Bloomington.*
Roe, Arthur,	*Vandalia.*
Rowland, Elbert Mallary,	*Olney.*
Saffer, Louis Byron,	*Urbana.*

Schaefer, Peter Philip,	*Carlyle.*
Tooke, Charles Wesley, A.M., *(Syracuse Univ.)*, 1893,	*Urbana.*
Trevett, John Howard,	*Champaign.*
Van Brundt, Chester S,	*Champaign.*
Wesemann, Adolph Henry,	*LaGrange.*

SECOND YEAR

Adsit, Bertram Wilson,	*Wellington.*
Boggs, Oliver Carter,	*Urbana.*
Boyd, John William,	*Rantoul.*
Church, Floyd Franklin,	*Bloomington.*
Cofield, Jesse Douglas,	*Arcola.*
Elder, Roy Samuel,	*Streator.*
Evans, Waldo Carl,	*Danville.*
Hall, Arthur Raymond,	*East Lynn.*
Harker, George Mifflin,	*Carbondale.*
Holmes, Frank Hamilton,	*N. Henderson.*
Humphry, Wallace George,	*Hamilton.*
McCollum, Harvey Darling,	*Louisville.*
Null, Louis Agassiz,	*Blandinsville.*
Padget, Will Marion,	*Palmyra.*
Perkins, Frederic Allen,	*Canton.*
Remann, Frederic Gordon,	*Vandalia.*
Sherman, William Horace,	*Sullivan.*
Stevenson, Amos Milton,	*Ottawa.*
Thompson, Frank James,	*Chicago.*
Tunnecliffe, John James, Jr.,	*Galesburg.*
Wilder, Frank Smith, A.B., *(Illinois Wesleyan Univ.)*, 1898,	*Champaign.*
Wingard, Lewis Forney,	*Champaign.*

FIRST YEAR

Boggs, Harry Hurd,	*Galesburg.*
Boyer, Harry Bennard,	*Altamont.*
Cairns, David Gemmell,	*Troy Grove.*
Dawson, Roscoe Milburn,	*Westfield.*
Garrett, Richard Pratt,	*Delavan.*
Hetherington, Benjamin William,	*LaSalle.*
Hughes, Samuel Kelso,	*Champaign.*
Jones, Henry Leonard,	*Delavan.*
Ketchum, Daniel Clement, A.B., 1899,	*Elmwood.*

Kiler, William Henry, A.B., 1897,	*Urbana.*
Kingsbury, James Thompson, A.B., 1899,	*Pinkstaff.*
Lego, Lulu Mackintosh,	*Urbana.*
Martin, Robert William,	*Wilmington.*
Miller, Thomas Henry,	*Macomb.*
Morrisey, Fay,	*Champaign.*
Rhoads, Horace Adams, A.B., 1899,	*Champaign.*
Robinson, James John,	*Marshall.*
Sheldon, Carl Edmunds, A.B., 1899,	*Sterling.*
Smith, Claude Frank,	*Clay City.*
Smith, Claude Frederick,	*Chicago.*
Spurgin, William Grant, A.M., 1898,	*Urbana.*
Stern, Nathan,	*Champaign.*
Stipes, Royal Arthur,	*Champaign.*
Siegfriedt, Thorwald Adolf Arthur,	*Davenport, Ia.*
Thompson, George Mershon,	*Bement.*
Webster, John Wesley, Ph.B., *(De Pauw Univ.)*, 1898,	*Danville.*
Wood, Harvey Edgerton,	*Joliet.*
Wyne, Ervin Evermont,	*Macomb.*

SPECIALS

Abbott, Allie Morledge,	*Clarinda, Ia.*
Brown, Volney Edward,	*Woodstock.*
Coffman, Henry Augustus,	*Champaign.*
Crouch, William Liebrick,	*Rozetta.*
Day, Frederic Lathrop,	*Brimfield.*
Gardiner, Royal Thomas,	*Troy Grove.*
Howard, Joseph,	*Urbana.*
Jones, Guy Raymond,	*Tuscola.*
Kuhn, Leopold,	*Champaign.*
Lorenson, John Hanson,	*Lovington.*
Stewart, William Bowen,	*Mason City.*
Snyder, Bertram Eugene,	*Dalton City.*
Switzer, Robert Mortimer,	*Galesburg.*
Wingard, David Roy,	*Champaign.*
Wright, William Wilberforce, Jr.,	*Toulon.*

COLLEGE OF MEDICINE
(COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO)

SENIOR CLASS

Alcorn, Archibald John,	*Chicago.*
Avery, Elmer K.,	*Chicago.*
Babcock, Margaret McConnell,	*Warren, Pa.*
Ball, Edmund J.,	*Plymouth, Ind.*
Besser, Edward Francis,	*Harper, Ia.*
Birkelund, John R., A.B., *(Royal Univ., Copenhagen)*, 1886; B.D., *(Royal Univ., Copenhagen)*, 1890.	*Chicago.*
Blackwelder, Fred C., B.S., *(DePauw Univ.)*, 1897,	*Litchfield.*
Bloch, Max Emanuel,	*Chicago.*
Boice, Clyde Allison,	*Washington, Ia.*
Bosler, Arthur Gustavus, M.D., *(Jenner Medical Coll.)*, 1899,	*Chicago.*
Bremken, Arthur,	*Chicago.*
Brewer, Edwin Jason,	*Ashton.*
Brown, Hadley C.,	*Columbus Junction, Ia.*
Burke, Edward L.,	*Phelps, Minn.*
Buswell, Clark A.,	*Eagle Point.*
Cassidy, William Wilson,	*Wabasho, Minn.*
Chase, Mrs. Barbara West,	*St. Paul, Minn.*
Church, Elwin Otis,	*Watertown, S. Dak.*
Clancey, Marshal G.,	*Albion, Mich.*
Clark, Orson W.,	*Ogden, Ia.*
Corbus, Burton Robison,	*LaSalle.*
Crowley, John Francis,	*Chicago.*
Crumb, Genevieve,	*Cherry Creek, N. Y.*
Culver, John Thayer, M.D., *(Jenner Medical Coll.)*, 1899	*Chicago.*
DeVault, Asa Nathan, Ph.G., *(Northwestern Univ.)*, 1893,	*Martins Ferry, O.*
DeVoe, Charles Allen,	*Lamartine, Wis.*
Donovan, Joseph P.,	*Madison, Wis.*
Dowdall, Guy Grigsby, B.L., *(Univ. of Missouri)*, 1897,	*Chicago.*
Dryden, William Francis,	*Chicago.*

Dunham, Ora Bertan, *Chicago.*
Dysart, Robert Jones, A.B., *(Lake Forest Univ.)*, 1893, *Ripon, Wis.*
Early, Calvin S., B.S., *(Ohio Normal Univ.)*, 1897; Ph.G., *(Ohio Normal Univ.)*, 1898, *West Cairo, O.*
Elliott, Mrs. Sara Thomas, *Lone Rock, Wis.*
Flint, Nellie C., B.S., *(Drake Univ.)*, 1896; M.D., *(Hahnemann Medical Coll.)*, 1899, *Austin.*
Flippin, George Albert, *Lincoln, Neb.*
Freeman, John Peter, *Glenville, Minn.*
Gale, Roe G., M.D., *(Univ. Medical Coll., Kansas City, Mo.)*, 1899, *Diller, Neb.*
Gansel, Edward Arthur, *Milwaukee, Wis.*
Geiger, Arthur Henry, *Chicago.*
George, Abel Benson, *Elliott, Ia.*
Gilmore, Clifford Freeman, B.S., *(Oberlin)*, 1897, *Chesterland, O.*
Goodwin, Henry French, A.B., *(Olivet Coll.)*, 1884, *Chicago.*
Greenfield, Sara Elaine, A.B., *(Univ. of Kansas)*, 1897, *Sabetha, Kas.*
Grinnell, Wendell B., *Fredonia, Wis.*
Haan, George William, *Crown Point, Ind.*
Halloin, Louis J., *Green Bay, Wis.*
Hamilton, Howard B., A.B., *(Monmouth Coll.)*, 1897, *Washington, Ia.*
Hamilton, Wilbur S., M.D., *(Hahnemann Medical Coll.)*, 1895, *Norman, Okla.*
Hampton, Robert R., *Salt Lake City, Utah.*
Hannon, Horace Blake, Ph.G., *(Univ. of South)*, 1895, *Cairo.*
Hart, Henry George, *Chicago.*
Heath, Clarence Wright, B.L., *(Univ. of Mich.)*, 1893, *Benton Harbor, Mich.*
Helm, William Eugene, *Elgin.*
Hixson, Robert Bruce, *Herman, Minn.*
Hummel, Edward Percival, *LaPorte City, Ia.*
Hurst, Everett M., *Mt. Meridian, Ind.*
Hyde, Edward Everett, A.B., *(Knox Coll.)*, 1896, *Galesburg.*

Jakubowski, Siegfried,	*Chicago.*
Jennings, James Arthur, M.D., *(Bennett)*, 1898,	*Chicago.*
Johnston, Robert Moore, A.B., *(Wash. and Jeff. Coll.)*, 1895,	*Upper St. Clair, Penn.*
Just, Guy Henry,	*Sheldon.*
Kirk, Alonzo Blackburn,	*Valparaiso, Ind.*
Knauf, Frederick P.,	*Chilton, Wis.*
Laben, George John, B.S., *(Perdue Univ.)*, 1895,	*Crown Point, Ind.*
Lang, John M.,	*Chicago.*
Lenard, Robert,	*Chicago.*
Lowenrosen, A.,	*Chicago.*
Loope, Frank Roy,	*Bessemer, Mich.*
Luehrsmann, Barney H.,	*Dyersville, Ia.*
McAuliffe, Andrew Francis,	*Chicago.*
McCaffry, Mrs. Honoria Buckley,	*Chicago.*
McConnell, J. W.,	*Chicago.*
McCormick, Olin,	*Gibson City.*
McCray, Walter R., Ph.G., *(Univ. of Iowa)*, 1897,	*Marble Rock, Ia.*
Malick, Ada Luella,	*Celina, O.*
Martin, Ernest Edwin,	*Gambril, Ia.*
Masilko, Vandy Frank,	*Chicago.*
Mason, Harry Philson,	*Wilton Junction, Ia.*
Meany, John Joseph,	*Chicago.*
Meloy, John Earle,	*Olean, N. Y.*
Metz, Irwin Taza, A.B., *(Indiana Univ.)*, 1895,	*South Whitley, Ind.*
Meyhaus, John Henry,	*Davenport, Ia.*
Miller, Bernard,	*Peru.*
Miller, Gustav August,	*Chicago.*
Milroy, William Denton, A.B., *(Univ. of Indiana)*, 1894,	*Delphi, Ind.*
Mitchell, Paul S., M.D., *(Hering Medical Coll.)*,	*Chicago.*
Moffett, William Nelson, B.S., *(Coe Coll.)*, 1895,	*Grundy Center, Ia.*
Moldenhauer, Gustav Herman,	*DesPlaines.*
Monohan, Charles Richard,	*Charlotte, Ia.*
Moody, Lewis, A.B., *(Augustana Coll.)*, 1895,	*Cokato, Minn.*

Moradian, John Kasper, M.D., *(National Medical Coll.)*, 1897, *Constantinople, Turkey.*
Morgan, Emma Nevins, *Aledo.*
Muehlmann, Carl George, Ph.G., *(Chicago Coll. of Pharmacy)*, 1888, *Pekin.*
Nagel, Frank Emil, *Chicago.*
Newbold, Edwin Henry, M.D., *(Univ. of Iowa)*, 1893, *Oroville, Cal.*
Newell, Charles Homer, M.D., *(Missouri Medical Coll.)*, *O'Neill, Neb.*
Niblock, George Frederick, A.B., *(Monmouth Coll.)*, 1895, *Marshalltown, Ia.*
Nier, William Jacob, *Chicago.*
Norsman, Soren S., *Madison, Wis.*
North, Francis Elbert, *Chattanooga, Tenn.*
Novak, Mrs. Anna F., M.D., *(Bennett Medical Coll.)*, 1895, *Chicago.*
O'Day, John Christopher, *Montpelier, Ind.*
Odoardo, Antonio Fredricks, A.B., *(Univ. of Havana)*, 1889, *Havana, Cuba.*
Osborne, Claude Fenton, *Hanlontown, Ia.*
Palmer, Ralph Fleetwood, *Marquette, Mich.*
Parsons, Stephen Tylor, M.O., *(Chicago Ophthalmic Coll.)*, *Ovid, Mich.*
Patterson, William Edward, *Clarksville, Ia.*
Pelletier, Dyre Henry, *St. Anne.*
Phalen, James Matthew, Ph.G., *(Northwestern Univ.)*, 1892, *Harvard.*
Pinkerton, Walter Jewett, *Waupaca, Wis.*
Podstata, Vaclav, M.D., *(Chicago Homeopathic Medical Coll.)*, 1895, *Kankakee.*
Potter, Ward Elverton, Ph.G., *(Northwestern Univ.)*, 1897, *Alta.*
Purcell, Harry Edward, *Madison, Wis.*
Richter, Arthur J., *Chicago.*
Rinehart, Jesse Samuel, *West Cairo, O.*
Rock, Henry Joseph, *Webster, S. Dak.*
Rose, Felix, *Green Bay, Wis.*
Runyan, Chanler Preston, *Mt. Meridian, Ind.*
Ryder, Bayard Edward, *Chicago.*
Sargeant, Frank Loring, *Marion, Ia.*

Sassaman, Franklin W., M.D., *(Central Univ. of Kentucky)*, 1892, *Boone Grove, Ind.*
Scott, Robert David, Ph.G., *(Ontario Coll. of Pharmacy)*, 1885, *Chicago.*
Sears, George Lucien, *Milan.*
Sharp, C. E., M.D., *(Chicago Homeo. Coll.)*, 1895, *Elgin.*
Sheppard, Louis Delos, *Chicago.*
Sieker, Arthur William, A.B., *(Mission House Coll.)*, 1894, *Franklin, Wis.*
Smith, Seth Marion Billings, *Ft. Atkinson, Wis.*
Sornsen, Antoine Augustus, M.D., *(Keokuk Medical Coll.)*, 1894, *Summit, S. Dak.*
Spain, Robert T., Ph.G., *(Drake Univ.)*, 1897, *Hartford, Ia.*
Staekle, Max, *Manitowoc Wis.*
*Surridge, F. E., *Ravenswood.*
Syverson, Elmer Louis, B.L., *(Univ. of S. Dak.)* 1896, *Vermillion, S. Dak.*
Taber, Roland Bert, Ph.C. *(Univ. of Mich.)*, 1896, *Benton Harbor, Mich.*
Tadlock, James L., M.D., *(Missouri Medical Coll.)*, 1884, *Coatesville, Mo.*
Teschan, Rudolf Freimuth, *Milwaukee, Wis.*
Thompson, James Raymond, *Morning Sun, Ia.*
Torney, Samuel J., *Saratoga, Ia.*
Turner, D. Ashley, *Dakota.*
Twohig, Henry E., *Armstrong, Wis.*
Tyson, Earle, *Independence, Ia.*
Vincent, Henry Ansel, *Chilton, Wis.*
Voigt, Charles Bernard, *Mattoon.*
Voss, Carl, A.B., *(Royal Univ., Christiania, Norway)*, 1889, *Chicago.*
Wall, Charles Delamere, *Chicago.*
Weatherson, John, C.E., *(Cornell Univ.)*, 1895, *Chicago.*
West, Theodore C., *Evansville, Wis.*
Westerlund, Joseph Emanuel, A.B., *(Augustana Coll.)*, 1895, *Orion.*
Wilson, John West, M.D., *(Univ. of Iowa)*, 1894, *Oroville, Cal.*

* Deceased.

Woodford, Erwin Wendell, *Tomah, Wis.*
Xelowski, John H., Ph.G., *(Chicago Coll. of Pharmacy)*, 1887, *Chicago.*
Yung, Julius Rudolph, *Terre Haute, Ind.*
Zaleski, Joseph P., Ph.G., *(Univ. of Warsaw, Poland)*, 1891. *Chicago.*

JUNIOR CLASS

Ames, Andrew James, *Chicago.*
Apfelbaum, David M., *Chicago.*
Avey, Oliver Hammond, A.B., *(Penn Coll.)*, 1881, *Salt Lake City, Utah.*
Baumann, Frederic, A.M., Ph.D., *(Univ. of Konigsberg)*, 1893, *Chicago.*
Bechtol, Charles O., A.B., *(Indiana Univ.)*, 1898, *Huntington, Ind.*
Bennett, Henry S., *Moline.*
Beyer, Arthur Edwin, Ph.G., *(N. W. School of Pharmacy)*, 1896, *Plymouth, Ind.*
Birk, John W., *Bucyrus, Ohio.*
Boss, J. H., *Plymouth, Ind.*
Bracken, George Francis, *Lemont.*
Bradfield, J. H., *Disco.*
Brawley, Frank Ellis, Ph.G., *(Northwestern Univ.)*, 1897, *Chicago.*
Buechner, F. E., Ph.G., *(Univ. of Ill.)*, 1897, *Chicago.*
Burke, E. W., *Iowa Falls, Ia.*
Burt, Charles W., B.S., *(Drake Univ.)*, 1896, *Valley Junction, Ia.*
Buss, Francis J., *Chicago.*
Cameron, Warren Leonard, *Jacksonville, Ore.*
Carpenter, Cora White, *Colorado Springs, Col.*
Cates, Getta Marie, *Chicago.*
Chassell, J. L., *Iowa Falls, Ia.*
Church, Elmer E., *LaFayette.*
Clark, Leslie Webb, *Galesville, Wis.*
Colborn, John Alfred, *Oxford, Ind.*
Colburn, George Alfred, *Highland Park.*
Conway, Hugh P., *Elroy, Wis.*
Corbett, George William, Ph.G., *(Northwestern Univ.)*, 1890, *Plymouth, Wis.*
Corbus, B. Clarke, *Chicago.*

Cory, Walter Bennett, *Viroqua, Wis.*
Culver, Louie L., *Sandwich.*
Cunningham, William D., A.B., *(Grove City Coll.)*, 1897, *Grove City, Pa.*
Cupler, R. Clinton, Ph.G., *(Northwestern Univ.)*, 1896, *Chicago.*
Davis, Charles Johnston, *Waupaca, Wis.*
Dennert, Frank, *Dubuque, Ia.*
Denny, Alden Ray, Ph.B., *(Univ. of Iowa)*, 1898, *Burlington, Ia.*
Dethlefsen, George H., *Chicago.*
Diven, George R., *Anderson, Ind.*
Dodson, C. A., *Litchfield.*
Domer, Walter A., B.S., *(Univ. of Wisconsin)*, 1897, *North Manchester, Ind.*
Donkle, A. DeF., Ph.G., *(Univ. of Wisconsin)*, 1898, *Madison, Wis.*
Dwyer, John Condit, *Chicago.*
English, Edward G., *Arcadia, Wis.*
Frank, Mortimer, S.B., C.E., *(Mass. Inst. Tech.)*, 1897, *Chicago.*
Fulton, Hiram Ansley, *Hudson, Wis.*
Garnett, Isabella M., *Chicago.*
Garraghan, Edward F., *Chicago.*
Gorrell, Talbot J. H., *Chicago.*
Gould, Henrietta, *Chicago.*
Gustafson, Joseph Ansley, *Orion.*
Heilman, Ernest S., *Ida Grove, Ia.*
Heintz, Edward Louis, Ph.G., *(St. Louis Coll. of Pharmacy)*, 1898, *Richmond, Mo.*
Henbest, George M., *Ft. Atkinson, Wis.*
Hess, William Clarence, *Fanslers, Ia.*
Hews, Lewis DeWitt, *Rockwell City, Ia.*
Holmberg, LeRoy J., *Galesville, Wis.*
Hombach, W. P., *Carroll, Ia.*
Howard, Harry W., *Spokane, Wash.*
Howe, Frank Stewart, B.S., *(Geneva Coll.)*, 1898, *Industry, Pa.*
Hoxey, Robert Patton, B.S., *(Doane Coll.)*, 1893, *Chicago.*
Hubbard, Chester William, *Cedar Rapids, Ia.*

Hunt, Hiram H.,	*Independence, Ia.*
Jacobs, Isaac Melvin,	*Perth, Kan.*
Johnson, C. C.,	*Wilton Junction, Ia.*
Jordan, M. S.,	*Grand Mound, Ia.*
Kaeser, Albert Fred, B.S., *(Univ. of Illinois)*, 1898,	*Highland.*
Kellogg, James Rossiter,	*Portage, Wis.*
Kennedy, Josie C.,	*Rochelle.*
Kerrigan, Joseph P.,	*Chicago.*
Kimball, George W.,	*LaPorte, Ind.*
Kinder, Roscoe G. W.,	*Glenview.*
Kisecker, D. E.,	*Greencastle, Pa.*
Koch, Wesley Alfred,	*Pekin.*
Lampe, Henry G.,	*Chicago.*
Lennon, Aloysius Joseph,	*Joliet.*
Leonard, Henry Sylvester, A.B., *(Miami Univ.)*, 1898,	*Liberty, Ind.*
Liggitt, Flemming L.,	*Chicago.*
Ling, Frank,	*Chicago.*
Little, Zack J.,	*Chicago.*
Lockhart, Carl Wright, Ph.G., *(Northwestern Univ.)*, 1898,	*Elo, Wis.*
Lorch, George John, Ph.G., *(Chicago Coll. of Pharmacy)*, 1895,	*Independence, Wis.*
Luehrs, Henry E.,	*Hayton, Wis.*
McClellan, Clarence V. S.,	*Greenwood, Ind.*
McCoy, William Merrill,	*Clinton, Ia.*
McDowell, W.D., B.S., *(Monmouth Coll.)*,	*Monmouth.*
McDowell, W. O.,	*Waterloo, Ia.*
McGuinn, James J.,	*Chicago.*
McPherson, Warren G.,	*Toledo.*
Major, Will, B.S., *(Eureka Coll.)*, 1896,	*Chicago.*
Martin, Hugh Ralph,	*Bement.*
Martin, Winfred B.,	*Chicago.*
Maxwell, John C.,	*Penrose.*
Meadows, Lawrence Harland,	*Waverly Junction, Ia.*
Morton, Frank R.,	*Chicago.*
Murphy, Bernard E.,	*Chicago.*
Newman, W. M.,	*Albert Lea, Minn.*
Noble, Charles Montague,	*Chicago.*
Oliver, Clifton I.,	*Gilbert, Ia.*

Orcutt, Dwight Chapman,	*Arcola.*
Palmer, John M.,	*Milton, Wis.*
Parker, William R., Ph.G., *(Northwestern Univ.)*, 1889,	*Dixon.*
Parry, Ivan Arthur,	*Mankato, Minn.*
Petry, Frank,	*Beaverdam, Ind.*
Polson, Nina Dell,	*Laclede, Mo.*
Pratt, Mrs. J. Irene,	*Austin.*
Rhodes, Ora M., B.S., *(Univ. of Ill.)*, 1898,	*Bloomington.*
Rich, Mrs. Katharine Brainerd,	*Chicago.*
Ringo, G. Roy, M.A., C.E., *(Univ. of Neb.)*, 1898,	*Springfield, Neb.*
Robertson, W. F.,	*Lamoni, Ia.*
Rolfs, Theodore Henry,	*Milwaukee, Wis.*
Ruge, Edward Cornelius,	*Neenah, Wis.*
Ryon, Ralph Morton,	*Streator.*
Sage, Edward Daniel,	*Gobleville, Mich.*
Scholtes, Theodore William,	*Read's Landing, Minn.*
Scofield, C. J.,	*Chicago.*
Seaman, Hiram M.,	*Chicago.*
Sears, C. Edwin,	*Rock Island.*
Seifert, Mathias Joseph,	*Chicago.*
Severson, Will R.,	*Kankakee.*
Sexton, Ira J.,	*Chicago.*
Shaw, Robert Henry,	*Lyndon.*
Sherwood, Hauphrey H., Ph.G., *(Northwestern Univ.)*, 1894,	*Chicago.*
Shook, William E.,	*Auburn, Neb.*
Smith, Hugh E.,	*Ithaca, Mich.*
Sommers, John Charles Julius,	*Madison, Wis.*
Sternberg, Walter A.,	*DesMoines, Ia.*
Stober, Alvin M.,	*Greene, Ia.*
Storck, William, Ph.G., *(Chicago Coll. of Pharmacy)*, 1889,	*Chicago.*
Streich, Edwin August, Ph.G., *(Northwestern Univ.)*, 1898,	*Oshkosh, Wis.*
Struthers, Herbert Rankin, Ph.G., *(Chicago Coll. of Pharmacy)*, 1893,	*Chicago.*
Svegaard, Erik,	*Chicago.*
Talmage, George G.,	*Brushy Prairie, Ind.*
Taylor, Lucius Lorin,	*Waupun, Wis.*

Thompson, R. E., *Sextonville, Wis.*
Thorwick, Mrs. Martha Guvine, *Chicago.*
Tillmont, Charles P., *New Bremen, N. Y.*
Tracey, Fred A., *Aurora.*
Turner, Agnes, *South Bend, Ind.*
Ulrich, Julius Hirsch, Ph.G., *(Pa. Coll. of Pharmacy)*, 1895, *Peoria.*
Urquhart, Roy Thomas, *South Bend, Ind.*
Van Horne, James Apthorp, *Chicago.*
Vestling, Victor I., A.B., *(Augustana Coll.)*, 1895, *Ludington. Mich.*
Wallace, Franklin Lanphere, *Chicago.*
Waskow, Otto G., Ph.G., *(Chicago Coll. of Pharmacy)*, 1893, *Milwaukee, Wis.*
von Wedlstaedt, Bismark, *St. Paul, Minn.*
Wheat, Fred Calwell, B.S., *(Cornell Coll.)*, 1898, *Mt. Vernon, Ia.*
Williams, W. W., Ph.B., *(DePauw Univ.)*, *Grand View, Ia.*
Willing, Bertha, *Chicago.*
Wiltfong, Charles O., *Plymouth, Ind.*
Windrow, Mrs. Anna S. C., *Chicago.*
Wright, Chas. E., D.V.S., *(Ontario Veterinary of Toronto Univ.)*, *Sterling.*
Zabokrtsky, Joseph, *Walker, Ia.*

SOPHOMORE CLASS

Aaron, William Hubert, *Big Neck.*
Abbott, Ursa A., *Columbus, O.*
Agnew, J. Stanton, *Evanston.*
Albright, Jacob Levi, *Lena.*
Bartholomew, Philip Henry, *Edgewood Park, Pa.*
Beam, J. Albert, A.B., A.M., *(Univ. of Wooster)*, 1892, *Chicago.*
Beebe, Orville E., *Kankakee.*
Berger, Joseph Isidore, *Chicago.*
Bice, Clyde William, *Perry, Ia.*
Biederkopf, Christopher John, *Grand View, Ind.*
Bothne, Erling A., A.B., *(Luther Coll.)*, *Chicago.*
Brown, Josiah Scott, *Chicago.*
Brown, R. E., *Washington C. H., O.*
Brownstein, Bernard, *Chicago.*

Bundy, Corydon D., A.B., *(Illinois Wesleyan)*, 1899, *Iroquois.*
Burnham, Clarence M., *Watseka.*
Burns, Mrs. Elizabeth V., *Decatur, Ind.*
Caldwell, C. Henry, *Idana, Kan.*
Campbell, Fred A., *Waverly.*
Carr, James Gray, A.B., *(Ohio State Univ.)*, 1897, *Chicago.*
Cleary, John H., *Kenosha, Wis.*
Clemons, E. Jay, *Aberdeen, S. Dak.*
Coates, Lintsford Bois, *Chicago.*
Conant, Philo Bierce, *St. Joseph, Mich.*
Conitz, Leopold Alexander, *Chicago.*
Corcoran, Edward Augustine, *Postville, Ia.*
Court, Harry M., *Buffalo, N. Dak.*
Curtis, L. Franklyn, *Mt. Pulaski.*
Day, Harriet March, *Moweaqua.*
Dean, Joseph, Jr., *Madison, Wis.*
Dittmann, George C., Ph.G., *(Univ. of Ill.)*, 1897, *Chicago.*
Dorn, Charles Adolph, *Waterville, Minn.*
Dvorsky, Bohunier John, *Chicago.*
Everett, Henry Houghton, *Chicago.*
Faeth, Victor P., *Bucyrus, O.*
Freeman, Nacoochee Augusta, *Chicago.*
French, Wilbur Maynard, *Lancaster, Mo.*
Fuller, Francis Elmer, *Adrian, Mich.*
Garrett, Emmett A., *Sparland.*
Garrett, John D., A.B., *(Miami Univ.)*, 1898, *Bell, O.*
Gibbs, J. A., *Chester, Mass.*
Glynn, Chas. Edward, *Gambrill, Ia.*
Grabow, Paul E., *Oak Park.*
Graham, Archie James, *Gallipolis, O.*
Groos, John Otto, *Escanaba, Mich.*
Gulick, Clyde Denney, B.S., *(Univ. of Ill.)*, 1897, *Champaign.*
Hahn, Louis A., *Canton.*
Hamley, Eugene Carter, *Maquoketa, Ia.*
Hammers, Lewis J., *Normal.*
Harter, Virgil H., *Stronghurst.*
Haynes, B. H., *Estherville, Ia.*

Henderson, Maurice L., *Moscow, Ia.*
Herrington, Clarks Warren, *Madison, Wis.*
Hicks, J. Calvin, *Chicago.*
Holmes, Edward M., *Chicago.*
Holmes, John Mont, *Monticello.*
Hornibrook, Freeman Harding, *Cherokee, Ia.*
Ingersoll, Harriett, *Marengo.*
Inks, Chas. Andrew, *Nappanee, Ind.*
Jennings, Harriet Bell, *Chicago.*
Jennings, Ralph E., *Templeton, Ind.*
Johnson, Paul Wardner, B.L., *(Milton Coll.)*, 1898, *Stone Fort.*
Johnson, Wilbur V., *Chicago.*
Kaa, Niels A., *Ashkum.*
Kirch, John P., *Richland Center, Wis.*
Kitterman, Fred R., *Tiskilwa.*
Kitterman, P. Gad., *Ottumwa, Ia.*
Kittler, Walter Eugene, *Milwaukee, Wis.*
Klehm, A. Louise, *Niles Centre.*
Klingler, Ellis G., *Manhattan.*
Knox, Thomas P., *Madison, Wis.*
Kurtz, Fred B., *Princeton, Ind.*
Kyes, Sherman M., *Plymouth, Wis.*
Lahodney, Charles J., *Chicago.*
Lane, Charles Sumner, *South Lyons, Mich.*
Larson, Charles Ludwig, *Chicago.*
Leavitt, Frank James, *Langford, S. Dak.*
Lockwood, Charles Richard, *Kankakee.*
Low, Lew Morgan, *Chicago.*
Lunn, J. Martin, *Chicago.*
Lyon, George Elmer, *Rochelle.*
McCarthy, Mrs. Katherine W., *Chicago.*
McConvill, Bernard James, *Lodi, Wis.*
McKinney, I. Newton Charles, *Camargo.*
McNeil, Benjamin F., *Ft. Dodge, Ia.*
Manning, Thomas Francis, *Juneau, Wis.*
Maris, Emilie R., *Duluth, Minn.*
Merki, Emil J., *Chicago.*
Meyers, Judson M., *Verona, Wis.*
Millard, John Luther, *Battle Creek, Mich.*
Miller, George L., *Champaign.*

Morris, Robert Wilson, A.B., *(Monmouth Coll.)*, 1898, *Greenwich, N. Y.*
Murphy, Francis T., *Chicago.*
Nadig, Anton T., *Rush.*
Nickelson, George Allen, *Corpus Christi, Tex.*
Phifer, Charles Herbert, *Shumway.*
Phillips, Floyd, *Tuscola.*
Plice, William A., Ph. G., *(Chicago Coll. of Pharmacy)*, 1893, *Chicago.*
Podgur, Ph. Maxwell, *Chicago.*
Poinier, Edwin William, *Chicago.*
Potter, Charles Arthur, *LaFox.*
Powers, Herbert William, *Chicago.*
Rodefeld, Henry H., *Quincy.*
Rosenthal, George Earnest, *Quincy.*
Sabin, Alexander C., *Beatrice, Neb.*
Sawtelle, Henry Fenno, *Chicago.*
Shafer, Howard O., *Rochester, Ind.*
Sheller, William O., *Ashland, O.*
Shelton, R. O., *Pulaski, Ia.*
Sleyster, L. Rock, *Chicago.*
Smiley, R. Borden, *Lind, Wis.*
Smith, George W., *Galesburg.*
Sprecher, Samuel, *Eureka, S. Dak.*
Standly, Mrs. Kathryn Vance, *Laclede, Mo.*
Stillman, Wayne L., D.V.M., *(Iowa State Coll.)*, 1899, *Newell, Ia.*
Thomas, George Henry, *Chicago.*
Tolley, Elmer W., Oph.D., *(McCormick Ophthalmic Coll.)*, 1895, *Chicago.*
Tyvand, James C., *Forward, Wis.*
Venn, Walter T., *Aurora.*
Walvoord, Garrett William, *Cedar Grove, Wis.*
Weaver, Ben: Perley, B.S., *(Univ. of Ill.)*, 1899, *Danville.*
Welch, Jeannette Cora, A.B., *(Wellesley Coll.)*, 1889, Ph.D., *(Chicago Univ.)*, 1897, *Chicago.*
Wells, William Burdick, A.B., *(Milton Coll.)*, 1896, *Milton, Wis.*
Whyte, Peter D., *Chicago.*
Wilson, J. M., B.L., *(Monmouth Coll.)*, 1898, *Chicago.*

Wallen, Vera.	*Chicago.*
Xelowski, Thaddeus Z., Ph.G., *(Chicago Coll. of Pharmacy)*, 1896,	*Chicago.*
Yeates, William,	*Bonfield.*
Zilisch, William Edward,	*Hustisford, Wis.*
Zohrlaut, George Guido,	*Milwaukee, Wis.*

FRESHMAN CLASS

Anderson, Emil Bernard,	*Chicago.*
Barnes, Chas. Edward,	*Chicago.*
Barnes, Thornton Burleigh,	*Connellsville, Pa.*
Barnsback, J. Lester,	*Edwardsville.*
Barnum, William Truman,	*Adrian, Mich.*
Blough, George F.,	*Mongo, Ind.*
Bryan, Thomas S.,	*Indianapolis, Ind.*
Butler, William H.,	*Montreal, Can.*
Butterfield, Edwin J.,	*Crocker, Ia.*
Campbell, A. Bruce,	*Chicago.*
Casavaw, W. Francis,	*Sac City, Ia.*
Cody, Burtis Lyston,	*Evansville, Ind.*
Cohen, Sylvan G.,	*Chicago.*
Copenhaver, John H.,	*Bellflower.*
Cornell, William Q.,	*Chicago.*
Cornell, William Q.,	*Nunica, Mich.*
Dakin, Robert Griffin,	*Melvin.*
DeNeven, Arthur Valentine,	*Green Bay, Wis.*
Dodds, David Chillingworth,	*Idana, Kan.*
Donkle, Lucius B.,	*Madison, Wis.*
Dorn, Fred R.,	*Waterville, Minn.*
Doty, C. H.,	*Union, Ia.*
Dunn, Clara,	*Chicago.*
Eldredge, Richard L.,	*Chicago.*
Fanyo, Fred,	*Watseka.*
Fischer, Oscar G.,	*Chicago.*
Fisher, Frank C.,	*Bloomington.*
Forbes, Harvey J.,	*New Hampton, Ia.*
Frechtling, Louis Henry S.,	*Hamilton, O.*
Fritz, Albert Levi,	*Earlham, Ia.*
Fucik, Edward J.,	*Chicago.*
Geiger, Louis H.,	*Paxton.*
Giesen, C. W., Jr.,	*Calmer, Ia.*

Golden, John F.,	*Appleton, Wis.*
Gourley, Fred Lantz,	*Paxton.*
Hawkins, G. Merrill,	*Elkhorn Grove.*
Hays, Annie,	*Clarksville, Ark.*
Hilger, Joseph M.,	*Mazeppa, Minn.*
Horan, George F.,	*Chicago.*
Horn, Archie S.,	*Penaukee, Wis.*
Houda, Emil Otto,	*Chicago.*
Howard, George H.,	*Onalaska, Wis.*
Howe, Lyston Drewett,	*Streator.*
Johnson, Julius A.,	*Black River Falls, Wis.*
Joyce, Martin T.,	*Waterloo, Wis.*
King, Robert C.,	*Emmetsburg, Ia.*
Lamb, James G.,	*Voorhies.*
Lane, Robert Nelson,	*Danville.*
Lipman, William H.,	*Chicago.*
Long, W. Ernest,	*Roodhouse.*
Loveridge, Burt Taylor,	*Marcellus, Mich.*
McCarthy, Henry C.,	*Richland Center, Wis.*
McCarty, Charles E.,	*Ankona, Fla.*
Madden, William D.,	*Lyons, Ia.*
Maloy, Bernard S.,	*Englewood.*
Martin, Nancy Lee,	*Monmouth.*
Mellen, Charles Sylvester,	*Chicago.*
McGann, Michael E.,	*Joliet.*
Miller, Charles A., A.B., *(Indiana Univ.)*, 1896,	*Princeton, Ind.*
Miller, Donald Campbell,	*Viroqua, Wis.*
Miller, G. P.,	*Chicago.*
Molnar, Helen,	*Tavornik, Moravia.*
Moore, Will H.,	*Chicago.*
Mullany, Thomas J.,	*Jesup, Ia.*
Myers, Carleton Spencer,	*Chicago.*
Nagano, Heisa,	*Kyoto, Japan.*
Nowakowski, John J.,	*Chicago.*
Oberholtzer, Edward J.,	*Williamsfield.*
Parker, Don. Leon,	*Shelbyville.*
Pickett, Charles H.,	*Chicago.*
Poorman, C. Wallace,	*Junction City, Kan.*
Porter, William H.,	*Beaulieu, N. Dak.*
Power, Lamor M.,	*Escanaba, Mich.*

Reeves, Emory W.,	*Plymouth, Ind.*
Rightman, William M.,	*Chicago.*
Rolfe, J. Arthur,	*Flandreau, S. Dak.*
Sackett, L. Melville,	*Parsons, Kan.*
Schroeter, Oscar V.,	*Chicago.*
Seidel, Albert William,	*Quincy.*
Shepherd, William Arthur,	*Seymour, Wis.*
Shoop, Arthur,	*Columbus, O.*
Sibley, Leroy,	*Terre Haute, Ind.*
Silverberg, William,	*Chicago.*
Smith, James Lawrence, Jr.,	*Chicago.*
Stuenkel, Arthur J.,	*Arlington Heights.*
Sure, Julius H.,	*Chicago.*
Swarthout, Ellis F.,	*Pine Island, Minn.*
Thomas, Benjamin,	*Macon, Miss.*
Thomas, Mrs. M. S.,	*Macon, Miss.*
Tweedall, Daniel G.,	*Evansville, Ind.*
Uran, Joseph Alfred,	*Kankakee.*
Urmston, Paul Robert,	*Hamilton, O.*
Vance, Harve M.,	*Bement.*
Waddle, Herbert Clark,	*Normal.*
Was, Francois J. T.,	*Chicago.*
Waufle, Guy A.,	*Milton Junction, Wis.*
Weld, J. Cushing,	*Chicago.*
Wessels, Walter F.,	*Quincy.*
Wicks, Seth,	*Akron, Ind.*
Wilson, James W.,	*Chicago.*
Wilson, R. Lamont,	*New Hampton, Ia.*
Wochos, Wenzel M.,	*Stangelville, Wis.*
Yates, Charles Everett,	*Narka, Kan.*

SPECIALS AND UNCLASSIFIED

Adams, E. M.,	*Chicago.*
Alexander, Mrs. F. L.,	*Wheaton.*
Ames, J. W.,	*Chicago.*
Bamburger, George W.,	*Chicago.*
Baumgart, Fred,	*Danville.*
Bentley, F. J.,	*Grand Island, Neb.*
Borden, Frank R.,	*Plainfield, Wis.*
Broad, Henry,	*Chicago.*
Burgman, E.,	*Logansport, Ind.*

Burkholder, S. G.,	*Chicago.*
Campbell, Ora E.,	*Chicago.*
Cartmell, Harry,	*Assumption.*
Cheng, Yung-peng,	*Kewkiang, China.*
Clark, J. S.,	
Collvin, Norman G.,	*Chicago.*
Combe, Brimbley W.,	*Carmi.*
Cremer, Peter H.	*Mazeppa, Minn.*
Dvorak, Rose E.,	*Chicago.*
Edgar, Nelson,	*Holstein, Ia.*
Fee, Louis,	*Texas, Mich.*
Fonger, J. H.,	*Gary, S. Dak.*
Forkin, W. Patrick,	*Chilton, Wis.*
Gurley, E. L.,	*Chicago.*
Haanshus, W.	*Chicago.*
Harris, Fred,	
Hazelton, L. F.,	*Baraboo, Wis.*
Holmes, P. H.,	
Kroeper, P. J.,	*Chicago.*
Luesman, Mrs. Elsa E.,	*Chicago.*
McGuire, James Bernard.	*Chicago.*
McHugh, M. G.,	*Omaha, Neb.*
McKinney, G. L.,	*Chicago.*
Mueller, J. C.,	
Platchinsky, Benjamin M.,	*Chicago.*
Randall, Mrs. Charlotte,	
Reynolds, Hardin W., B.S., *(Va. Mil. Inst.)*, 1894,	*Chicago.*
Robertson, D. B., M.D.,	*Chicago.*
St. John, J. M.,	*Carmi.*
Schmidt, Felix,	*Milwaukee, Wis.*
Schön, Mrs. Joan,	
Sherman, K. S.,	*Chicago.*
Solon, Anthony,	*Streator.*
Webber, Blanche E.,	*Kankakee.*
Winans, Chase E.,	
Wood, W. W.,	*Angola, Ind.*

SCHOOL OF PHARMACY

SENIORS

Alexander, John William,	*Harvey.*
Arnold, Almond Clifford,	*Perrington, Mich.*
Bilz, Michael Aloysius,	*Chicago.*
Boehm, Rudolph Siegfried,	*Chicago.*
Caron, Walter,	*Chicago.*
Czaja, Peter,	*Chicago.*
Daley, William Henry,	*Nashua, Ia.*
von Danden, Raymond,	*Chicago.*
Davis, Leonard Watkin,	*Topeka, Kan.*
Dickey, Lily A.,	*Chicago.*
Drake, T. Guthred,	*Prairieton, Ind.*
Drallmeier, Fred Henry, Jr.,	*Quincy.*
Emerson, Irving Lewis,	*Sauk Center, Minn.*
Freeman, Roscius Wright,	*River Falls, Wis.*
Fulton, Peter McMullen,	*Stockton.*
Gillette, Arthur,	*Hudson, Mich.*
Graham, William Rice,	*Carlinville.*
Hobart, Maud Finley,	*Gilman.*
Holderread, Walter,	*Litchfield.*
Houseman, Gilbert,	*Chicago.*
Ives, George Smith,	*Amboy.*
Jackola, Abraham Arthur,	*Calumet, Mich.*
James, Clarence Lorenzo,	*Herscher.*
Johnson, John August,	*Gile, Wis.*
Kenney, Cornelius Edward,	*Cedarburg, Wis.*
Kiedaisch, George Arthur,	*Keokuk, Ia.*
Kucera, Anton,	*Hazelhurst, Wis.*
Lestina, Joseph Matthew,	*Chicago.*
Lyon, Fred B.,	*Lyons, Kan.*
Niemeyer, John,	*Elkader, Ia.*
Paul, George Henry,	*Augusta, Wis.*
Pfaff, Fred Lewis,	*Centralia.*
Priest, Fred Horace,	*Hastings, Ia.*
Rose, William Ernest,	*Harrisburg.*
Rounds, Marvin Bird Cleo,	*Chicago.*
Scanlan, Walter Samuel,	*Chicago.*
Schreiber, Louis,	*Columbus, Neb.*
Solomon, Lee Kleinert,	*Chicago.*

Stamm, Wenzel Alfred,	*Milwaukee, Wis.*
Steyer, George Edward,	*Chicago.*
Stimson, Charlotte Elizabeth,	*Tiskilwa.*
Utt, Alfred Reuben,	*Pittsfield.*
Valbracht, Harry Daniel,	*Chicago.*
Vincent, Philip Darius,	*Mason City, Ia.*
Warhanik, Alvernon Frank,	*Chicago.*
Webster, Charles Jeremiah,	*Canton.*
Weible, Alfred Tennyson,	*Malden.*
Wellman, Walter Henry,	*Quincy.*

JUNIORS

Bade, Walter Herbert,	*Plymouth, Wis.*
Baumann, Noble Franklin,	*Springfield.*
Bob, Paul William,	*Roseville.*
Bogue, Ralph Foster,	*Chicago.*
Bowden, Frederick Leopold Treacher,	*West Pullman.*
Bradshaw, Charles Elias,	*Princess Anne, Md.*
Briggs, William Jefferson,	*Burlington, Kan.*
Clarke, Fred Blaine,	*Morris, Minn.*
Crew, James Henry,	*Minneapolis, Minn.*
Delbridge, Cyril John,	*Chicago.*
Dilworth, Thomas Isaac,	*Warren, O.*
Downey, William,	*Wenona.*
Eagelston, Earnest Eugene,	*Castleton.*
Eder, George Joseph,	*Crown Point, Ind.*
Englert, William Robert,	*Elko, Nev.*
Everett, Edwin, Jr.,	*Atkinson.*
Fernholz, Edward Nicholas,	*Jefferson, Wis.*
Ferris, Vera Edna,	*Paris.*
Fox, Guy Gore,	*Norfolk, Neb.*
Gabrielson, Joseph Arthur,	*Chicago.*
Gans, Leo,	*Fremont, Neb.*
George, Alexander Hamilton,	*Chicago.*
Giese, Harry William,	*Bloomington.*
Gilmore, Ora Lee,	*Fisher.*
Glogau, Alexander,	*Chicago.*
Gold, Morris,	*Chicago.*
Halsted, Rolla Lester,	*Rock Falls.*
Heavey, James Patrick, Jr.,	*Chicago.*
Hibbe, Harry Mathew,	*Chicago.*

Hipke, Walter William,	*Hersher.*
Hogan, Daniel Joseph,	*Chicago.*
Hogan, Edward William,	*Amboy.*
Holden, Henry Frederick,	*Charlotte, Mich.*
Hopkins, Richard Herbert,	*Cole, Ia.*
Howk, Charles,	*Windsor.*
Hull, Harry LeRoy,	*Chicago.*
Ibach, Alfred Charles,	*Chicago.*
Jensen, Eli,	*Chicago.*
Kabat, Joseph Edward,	*Reedsville, Wis.*
Kenney, John Edward,	*Chicago.*
Kleinofen, Melvin,	*Chicago.*
Knaak, Theodore John,	*Deerfield.*
Koerper, Henry W.,	*Mendota.*
Kokes, Anton Randolph,	*Ord, Neb.*
Kraemer, Frank William,	*Lake View.*
Kreml, Otto Anton,	*Chicago.*
Kunz, William,	*Mayville, Wis.*
Lee, John Victor,	*Evanston.*
Lehmann, Ernest Sigmund,	*Chicago.*
Lofborn, Ralph Walter,	*Geneva.*
Lofstrom, Alfred,	*Chicago.*
Lyons, George Henry,	*Meadville, Pa.*
McDougall, Joseph Donald,	*Warsaw.*
Malone, John W.,	*LaSalle.*
Mayo, Frederick William,	*Cedar Rapids, Ia.*
Mitchell, William Lewis,	*Newhope, S. Dak.*
Moore, Laurence Francis,	*Keokuk, Ia.*
Newman, Frank Leslie,	*Chicago.*
O'Connell, Charles John,	*New Rockford, N. Dak.*
O'Malley, Will,	*Kankakee.*
Orbesen, Christ Jensen,	*Chicago.*
Perry, Benjamin,	*Melvin.*
Peterson, Enoch Fred,	*Chicago.*
Phillips, William Robetoy,	*Selkirk, Ontario.*
Rennen, William Anthony,	*Chicago.*
Rexroth, Charles Marion,	*Napoleon, O.*
Robbins, Fred Dardinelles,	*Pekin.*
Roberts, William Henry,	*Piper City.*
Roesch, Anton,	*Waumandee, Wis.*
Salchert, Herman Anton,	*Oconto Falls, Wis.*

Saxe, George,	*Albion.*
Schaefer, Walter Johann,	*New Braunfels, Texas.*
Schaffarzick, Charles Frank Ralph,	*Jefferson, Wis.*
Schmidt, Edmund,	*Naperville.*
Schmitt, Walter,	*Chicago.*
Schnaider, Roy Allison,	*Peotone.*
Schock, George Henry,	*Chicago.*
Schultz, Charles Frank,	*Neenah, Wis.*
Schulze, Arthur Henry,	*Chicago.*
Schwerm, Carl Henry,	*Peoria.*
Searcy, James Arthur,	*Wellsville, Kan.*
Selck, William Henry,	*Arcadia, Wis.*
Seltzer, Bert,	*Manhattan.*
Shapiro, Morris Albert,	*Chicago.*
Stahlfeld, Paul George,	*Chicago.*
Stêbbins, Dustin A.,	*Council Grove, Kan.*
Swan, John Clyde,	*Maywood.*
Swartz, Frank Elijah,	*Roca, Neb.*
Switzer, George August,	*Riverside.*
Thorsen, Gustave William,	*Chicago.*
Ullman, Chester Arthur,	*Chicago.*
Weaver, Thomas Alvin,	*Louisburg, Kan.*
Weinberger, Edwin Augustus,	*Chicago.*
Wendland, Herman Charles,	*Eyota, Minn.*
Weston, Willard,	*Chicago.*
Weyrauch, James,	*Chicago.*
Whisenant, Walter Hines, B.S., *(Univ. of Texas)*, 1899,	*Kyle, Texas.*
Wiedemann, Frank Albert,	*Quincy.*
Winston, Jules Walker,	*Memphis, Tenn.*
Xelowski, Lucy Adela,	*Chicago.*
Zeller, Jay Harry,	*Chicago.*

PREPARATORY SCHOOL

Abbott, Cary Lorin,	*Leverett.*
Abbott, Ira Wilson,	*Danville.*
Alkire, Arthur Dwight,	*Urbana.*
Alkire, Henry Haven,	*Urbana.*
Allen, Arthur William,	*Peoria.*
Allen, John Newell,	*Hoopeston.*
Alley, William Edwin,	*Urbana.*
Armstrong, Gertrude Maud,	*Champaign.*

Ashley, Burton Floid,	*Sibley.*
Austin, George LeRoy,	*Metropolis.*
Bacon, Lewis Frank,	*LaPrairie.*
Ball, Ross Everett,	*Bushnell.*
Ballard, John Blaine,	*New Boston.*
Bantz, Oscar Evans,	*Muncie.*
Barker, Rollin Sabin,	*Mazon.*
Barlow, Lulu,	*Robinson.*
Barnhart, Charles Anthony,	*Mansfield.*
Barnhart, Jesse Melangthon,	*Mansfield.*
Bauer, Ralph Stanley,	*Champaign.*
Baum, Ethel Genevieve,	*Champaign.*
Baum, Ralph,	*Paris.*
Birket, William Edmund,	*Peoria.*
Black, George W,	*Oakland.*
Black, Lucien Robert,	*Purcell, Ind. Ty.*
Bond, Anna Louise,	*Mt. Vernon.*
Bond, John Myron,	*Champaign.*
Boyle, John Marshall,	*Roberts.*
Brandner, Minnie Fredda,	*Florence, Kan.*
Brant, Jessie Jennie,	*Hamilton.*
Brant, Mina Isabella,	*Hamilton.*
Briley, Norman Percy,	*Canton.*
Brink, Sherman Gillespie,	*Edwardsville.*
Buchanan, Gertrude,	*Urbana.*
Burry, James, Jr.,	*Chicago.*
Camp, Edna Cary,	*Tolono.*
Capps, Clarence Gordy,	*Mt. Pulaski.*
Casserly, Thomas David,	*Champaign.*
Chambers, Robert Elmer,	*Roberts.*
Clark, Alice Hartzell,	*Urbana.*
Clark, Clinton Oliver,	*Winchester.*
Coe, John Edwin,	*Rochester.*
Collins, Edra,	*Champaign.*
Conard, Sarah Orrilla,	*Monticello.*
Conklin, Alfred Oscar,	*Wichita, Kan.*
Conklin, Edward Julian,	*Wichita, Kan.*
Corbin, Henry,	*Carbon Cliff.*
Craig, James,	*Peotone.*
Crosthwaite, George Ashley,	*Urbana.*
Crouse, John Webster,	*Wacker.*
Cutts, Emery,	*Lee.*

Darnell, Jeffia Lee,	*Odessa, Ky.*
Dean, Harry Snow,	*Fremont.*
Dempsey, David Ralph,	*Armington.*
Dickerson, George Hamm,	*Mahomet.*
Dighton, John Netherton, Jr.,	*Monticello.*
Doran, Edwin Beale,	*Butler, Mo.*
Drury, Purne Omer,	*New Boston.*
Dunn, James,	*Clinton, Ia.*
Earl, Madge,	*Champaign.*
Eide, Torris,	*Lee.*
Elkas, Isaac,	*Canton.*
Elliff, Charles,	*Minier.*
Elliott, Roy G,	*Gilman.*
Ellis, Herbert Wesley,	*Gifford.*
Ells, Burtis Claflin,	*Clarinda, Ia.*
Garnett, Percie Ellen,	*St. Mary.*
George, Lewis Edwin,	*Fairfield.*
Gilbert, Menzis Eli,	*Mt. Vernon.*
Gillmore, George Boothe,	*Kinmundy.*
Glotfelter, Solomon Arthur,	*Minier.*
Goble, Charles Benjamin,	*Milan.*
Gossman, Frank Louis,	*Cairo.*
Green, Cella Genevieve,	*Ivesdale.*
Green, Mae Frances,	*Ivesdale.*
Greene, Edward Forbes,	*Tokio, Japan.*
Greenwood, Harris Paul,	*Edwardsville.*
Ginzel, Carl Louis,	*Trenton.*
Hadden, Samuel Cornelius,	*Mazon.*
Hanning, Carrie Amelia,	*Hopedale.*
Haslit, Percy,	*Dolson.*
Haubaker, Elim Jacobs,	*Mansfield.*
Henning, Burt Lawton,	*Steward.*
Henry, Smith Tompkins, Jr.,	*Bushnell.*
Higbee, Clarice Lucile,	*Milford, Ind.*
Hoon, Arthur Samuel,	*Dixon.*
Hosford, George Warner,	*Hamilton.*
Howard, Lida Frances,	*Urbana.*
Howard, Wallace Lawton,	*Sheffield.*
Howe, Alice,	*Urbana.*
Howe, Ralph Barnard,	*Urbana.*
Hubbard, John Russell,	*Winchester.*
Hughes, Anna,	*Champaign.*

Hughes, Chester Arthur,	*Urbana.*
Inks, Frank Emerson,	*Ohio.*
Janssen, Otto,	*Los Angeles, Cal.*
Johnson, Preston King,	*Champaign.*
Jones, Edward James,	*Secor.*
Jordan, Agnes Emma,	*Tolono.*
Kaeser, William George,	*Highland.*
Keller, Henry Shackelford,	*Edwardsville.*
Kelly, Elmer Lorin,	*Shumway.*
Kelso, Curtis Elmer,	*Thomasboro.*
Ketchum, Ellen Pauline,	*La Prairie.*
Keusink, Wilhelmina Minnie,	*Champaign.*
Keusink, William,	*Champaign.*
Kilbury, Asa,	*St. Joseph.*
Kimzey, Logan Guernsey,	*Tamaroa.*
Kreisinger, Henry,	*Chicago.*
Kunze, Curt Eugene,	*Garden Prairie.*
Lewis, Harry Chester,	*Mendota.*
Lindsay, Edward Eugene,	*Onarga.*
Lipsky, Reuben Louis,	*Chicago.*
Lohmann, Sherrill Blanchard,	*Urbana.*
Long, Troy Lovell,	*Morrisonville.*
McClure, Edgar Bradfield,	*Harrisonville, O.*
McCulloch, Ralph Duncan,	*Varna.*
McIntyre, Mary Alice,	*Newman.*
McMahan, Bernard Strange,	*Crows Landing, Cal.*
McMillen, Rolla Coral,	*Monticello.*
Madansky, Max,	*Fairfield.*
Martyn, James Rightor,	*Belvidere.*
Mautz, George John,	*Pana.*
Meharry, George Francis,	*Tolono.*
Miller, Charles Alexander,	*Bloomington.*
Miner, Clement Leon,	*Winchester.*
Moore, Rice Jacob,	*Arcola.*
Morris, Sidney Dealey,	*Chicago.*
Nuckolls, Charles Morrison,	*Urbana.*
O'Brien, Morgan Patrick,	*Champaign.*
O'Donnell, John,	*Belvidere.*
Parker, Calton William,	*Champaign.*
Pease, Tenney Hayes,	*Cisco.*
Peck, Harry Spencer,	*Mahomet.*
Perring, Roy Dodge,	*Gifford.*

Petersen, Holbert Stephen,	*Dickerson.*
Powell, Linda Marie,	*Welton, Ia.*
Prehm, Walter F,	*Chicago.*
Pritchard, Frank Preston,	*Urbana.*
Pritchard, Ordie E,	*Newport, Ind.*
Provine, Loring Harvey,	*Macomb.*
Railsback, Lee Willard,	*Hopedale.*
Reynolds, Edith Mary,	*Jacksonport, Wis.*
Rich, Claud Winferd,	*Cobden.*
Ricker, Ethel,	*Urbana.*
Ritter, Adah Frances,	*Urbana.*
Ross, Robert Malcom,	*Chicago.*
Rugh, Walter Evans,	*Blue Mound.*
Saunders, Thomas Earle,	*Ridge Farm.*
Schreiber, Rudolph Ernst,	*Chicago.*
Schulte, Lora,	*Hopedale.*
Schumacher, Henry Theodore,	*Toluca.*
Settlemire, David Pearson,	*Litchfield.*
Seymour, Arthur Platt,	*Thomasboro.*
Seymour, Charles Lincoln,	*Thomasboro.*
Shafer, Allen Andrew,	*Villa Grove.*
Sheldon, Charles Harper,	*Kewanee.*
Sheldon, John Rufus,	*Sterling.*
Shepherd, Fred Allen,	*Fairmount.*
Shields, Roy Harrison,	*Canton.*
Skinner, DeNevin,	*Champaign.*
Slocum, Mary Jane,	*Urbana.*
Slocum, Maude Stephens,	*Urbana.*
Smith, Stephen,	*Champaign.*
Soldwedel, John Henry,	*Pekin.*
Spicer, Rawser Norman,	*Loraine.*
Stahl, Garland,	*Elkhart.*
Stephenson, Lewis Alva,	*Redmon.*
Stocker, Charles Herbert,	*Highland.*
Tegen, Robert Frederick,	*Manitowoc, Wis.*
Terry, Nina,	*Humboldt.*
Teufel, Louis,	*Victor, Ia.*
Thompson, Evangeline Louise,	*Bement.*
Thompson, Sherman,	*Champaign.*
Toops, Claude,	*Seymour.*
Travis, Roy Elmer,	*Assumption.*
Troxell, George William,	*Rochester.*

Tubbs, James Arthur,	*Kirkwood.*
Tunnell, James Evans,	*Edwardsville.*
Van Dervort, Cornelius Horton,	*Phelps, N. Y.*
Wagoner, Ed Owen,	*Elliott.*
Walcott, Lloyd Vernon,	*Fillmore.*
Ward, Robert Russell,	*Benton.*
Warren, Charles Edward,	*Jerseyville.*
Wells, Harry Jarvis,	*LaMoille.*
Wells, Reginald Ellis,	*Urbana.*
White, Howard Allen,	*Batchtown.*
Williams, David Dayton,	*Herrin.*
Williams, Mary Edith,	*Newman.*
Willson, Morris,	*Carbondale.*
Wilson, Nancy Maude,	*Guthrie.*
Wise, Lewis W,	*Cerro Gordo.*
Wood, Henry A,	*Urbana.*
Woody, Riley Fassett,	*LaMoille.*
Worrell, Joseph Carl,	*Chili.*
Wright, Judson Moses,	*Danville.*
Wright, Lora,	*Urbana.*

SPECIALS IN MUSIC

Adams, Flora May,	*Cerro Gordo.*
Bradley, Gertrude Gailress,	*Champaign.*
Breckenridge, Blanche Fargason,	*Urbana.*
Bruffett, Lena Charlotte,	*Urbana.*
Burrill, Irene Elsa,	*Urbana.*
Busey, Mary,	*Urbana.*
Campbell, Luretta Beatrice,	*Champaign.*
Chapman, Marian,	*Vienna.*
Claybourn, Grace Myrtle,	*Champaign.*
Coar, Marjorie Belle,	*Urbana.*
Gillespie, Pearl,	*Champaign.*
Hanson, Mabel Irene,	*Urbana.*
Huss, Lilian Maude,	*Urbana.*
Johnson, Anna Malinda,	*Broadlands.*
Koch, Arlie Reuben,	*Mayview.*
Laflin, Mary Elizabeth,	*Champaign.*
Lindley, Etheldred Frank,	*Urbana.*
Lindley, Jessie Salome,	*Urbana.*
McIntyre, Mary Alice,	*Newman.*
Merritts, Louise,	*Champaign.*

Moore, Emma Beatrice,	*Arcola.*
Moore, Susan Leonore,	*Arcola.*
Mulliken, Phoebe,	*Champaign.*
Padget, Ora Lourena,	*Palmyra.*
Parks, Paul Lindley,	*Urbana.*
Prutsman, Lucy Catharine,	*Urbana.*
Renfrew, Adelia Elberta,	*Urbana.*
Shaver, William Earle,	*Weldon.*
Stewart, Naomi Carrie,	*Champaign.*
Trevett, Bessie Harriet,	*Champaign.*
Wells, Lilian Anna,	*Urbana.*

SUMMARY OF STUDENTS—1899-1900.

	Men.		*Women.*		*Total.*	
GRADUATE SCHOOL		65		7		72
UNDERGRADUATE COLLEGES—						
Seniors	111		36		147	
Juniors	126		50		176	
Sophomores	149		59		208	
Freshmen	157		67		224	
Specials	72		71		143	
		615		283		898
SPECIALS IN AGRICULTURE		64		2		66
SUMMER TERM		92		56		148
SATURDAY TEACHERS' CLASS		8		34		42
COLLEGE OF LAW—						
Third year	26		1		27	
Second year	22				22	
First year	27		1		28	
Specials	15				15	
		90		2		92
COLLEGE OF MEDICINE—						
Seniors	142		10		152	
Juniors	138		12		150	
Sophomores	122		8		130	
Freshmen	98		5		103	
Specials and unclassified	39		6		45	
		539		41		580
SCHOOL OF PHARMACY—						
Seniors	45		3		48	
Juniors	98		3		101	
		143		6		149
PREPARATORY SCHOOL		163		64		227
		1,779		495		2,274
Deduct counted twice		28		12		40
Total in University		1,751		483		2,234

DEGREES

Commencement Day, June 14, 1899, degrees were conferred as follows:

A.B.

Samuel Michael Bayard.
Ruth Bennett.
Mary Constance Bigelow.
Clarence Edgar Bocock.
Lucile Alice Booker.
Edith Clark.
Mary Edith Clark.
Philip Henry Clark.
Daisy Garver.
Louise Jones.
Daniel Clement Ketchum.
James Thompson Kingsbury.
Ida Susan Landel.
William Blake Leach.
Ella Loftus.
Mrs. Mary McGilvrey.
Jesse Erle Meharry.
Mason Harder Newell.
Arthur Elijah Paine.
Roy J. Railsback.
Ruth Cleveland Raymond.
Emma May Rhoads.
Horace Adams Rhoads.
Felix Ritchey.
Walter Robert Schutt.
Frank Thomas Sheean.
Henry David Sheean.
Carl Edmunds Sheldon.
Florence Mary Smith.
Elma Smoot.
Tom Woods Smurr.
Maggie Edith Staley.
Ralph Thompson.
Alice Mildred Vial.
Lulu Catherine Woolsey.
Bertram Otho Young.

B.S.

Harry Anderson.
Frank Hall Armstrong.
Gwavas Foster Beckerleg.
Ralph Bennett.
Thomas Murray Bevans.
James Clifford Bradley.
Theodore Leonard Burkland.
Halbert Lilly Chipps.
Harry Arthur Chuse.
Charles Luther Clifford.
Virginia Dinwiddie.
George Dodds.
Alexander Dawes DuBois.
Harry Truxtun Eastman.
Howard Montgomery Ely.
Clarence Earl Fleager.
Eugene William Penn Flesch.
Marcus Samuel Fletcher, M.D.
John Albert Foberg.
Robert Lambert Fowler.
William Alexander Fraser.
Winfred Dean Gerber.

Hugh McWhurr Gilchrist.
Walter B Griffin.
Fred Grim.
Louis Dixon Hall.
John Newton Herwig.
Irwyn Horatio Hill.
John King Hoagland.
George Wallace Hubbard.
Allie Dellena Hughston.
Frederick Milton James.
James Franklin Kable.
Fritz Conrad Koch.
John Albert Latzer.
Carroll Gray Lawrence.
Oscar Adolph Leutwiler.
Fred Morgan McElfresh.
Benoni Edward Mercil.
Josef Mesiroff.
Ralph Walter Mills.
Allen Meade Otwell.
Dasie Margaret Owens.
Horace Chamberlain Porter.
Fred Jacob Postel.
George Leslie Rapp.
John Eaton Raymond.
Paul Frederick Augustus Rudnick.
Garrett Teller Seely.
Charles Augustus Smith.
Elmer Church Smith.
Sidney Orin Swenson.
George Edward Tebbetts.
Otto John Theiss.
Martin L Ullensvang.
William Herbert Vance.
Edmund Volk.
Ben: Perley Weaver.
William W Webster.
Ralph Wilson Weirick.
James Ingersoll Wernham.
Mark Hubert Whitmeyer.
Maurice Meacham Willcox.
George Bassett Williams.
George Henry Wilmarth.
John Hayes Young.

B.L.S.

Jane Elizabeth Cook.
Edna Fairchild.
Emma Reed Jutton.
Marion Emeline Sparks.
Laura Allana Streight.

B.M.

Alice Putnam.

LL.B.

Richard Charles Donoghue.
Harold Frederick Trapp.

A.M.

William Wesley Black.
Lucy Hamilton Carson.

M.L.

Opal Heller.

M.E.

James Harry McKee.
Andrew Henry Neureuther.

M.S.

William Charles Brenke.
Hubert Vinton Carpenter.
Harry Clay Coffeen.
Louise Sarah Dewey.
Harry McCormack.
John Langley Sammis.
Richard W. Sharpe.
Louie Henrie Smith.
Albert Philip Sy.

LL.M.

George Bedell Worthen.

At the Commencement of the School of Medicine, April 19, 1899, degrees were conferred as follows:

M.D.

Charles A. Albrecht.
Hubert Franklin Andrews.
J. W. Backus.
Ernest Stanley Barker.
Frederick Louis Barnes.
Hiram H. Bay.
August Frederick Bechtold.
Lora L. Beedy.
E. E. Best, M.D.
Jonathan Clymont Betz.
James Moreau Brown.
George Stillman Browning.
Thomas Jerome Burke.
John H. Bush.
Clarence Albert Butler.
William Bernard Campbell.
Henry Colistuc Carroll.
W. H. Chamber, M.D.
E. A. Chloupek.
C. M. Coen.
L. G. Crosby.
Conrad Howard Czarra.
J. H. Dugan.
John Milton Edwards.
Bernard Fantus.
Leon Feingold.
Marie A. Fellows.
George Carl Fisher.
Ira Frank.
Frank Lesley Freas.
James William Garth.
Henry Gathman.
Robert J. Goggin.
B. C. Grabowicz.
John Patrick Grimes.
James Lloyd Hammond.
Frederick G. Harris.
Harvey C. Heald.
A. E. Herzog.
Thomas R. Hillard, A.B.
Henry J. Hillebrand.
Mrs. Helen Taylor Hisom.
Hanna Luella Hukill.
C. C. Hummel.
Mary Gill Hunter, M.D.
A. Jacobson.
Herman Janss.
Abbott E. Kay.
Luke H. Kelley.
Russell Calvin Kelsey, M.D.
Matthias Joseph Klein.
W. E. Klokke.
F. B. Knudson.
Eugene O. Koenemann.
Albert G. Kreuger.
Thomas D. Laftry.

Albert Robert Lemke.
William Henry Lerch.
Ross David Long.
W. E. Long.
David Ellsworth Lucas.
Robert G. McCarthy.
Alberta V. McClung, M.D.
Charles Alfred McCormick, M.D.
Oscar Eugene McWilliams.
O. E. Macy.
E. H. Madajesky.
F. F. Markey.
John Eugene Metcalf.
Frank William Myers.
Frank D. Moore.
Frederick Wolfgang Myers.
Wilhelm Carolins Olsen.
James Alphonse Peters.
Benjamin Merchant Platt, M.D.
Valdemar Pleth, M.D.
Jesse Young Potter.
Frank P. Ramsey.
Elmer J. Raw.
M. A. Reasoner, B.S.
William Frederic Reich.
G. R. Rich.
F. A. Richards.
Herman Richard Russell.
Philip G. Sanderson.
George Francis Scheib, B.S.
Gustav Schmitt, A.M.
Albert J. Schoenberg.
Charles E. Sisson.
Clarence Howard Slightam.
Thurston Smith.
Frank B. Steele.
A. W. Stillians.
Samuel Martin Strohecker.
John Stewart.
Eugene A. Sullivan.
J. E. Swanson.
John Richard Taylor.
Theodore Tieken.
Edmund Walter Timm.
John Harrold Turner.
James Lawson Walsh.
Edward Mathias Wanicek.
Carl E. L. Weber.
Ernest August Weichbrodt, M.D.
John Valentine Wenzel.
James William Wherry.
Eugene Rudolph Whitmore.
LeRoy Alvin Wilson.
Edward Clark Winans.
Glenn Wood.
William Kriebel Yakel, B.S.
Sallie A. Yingst.
Kasimar A. Zurawski.

At the Commencement of the School of Pharmacy, April 20, 1899, degrees were conferred as follows:

PH.G.

George Edwin Arnold.
Charles Walter Bartells.
Carl August Bernhardt Biese.
Horatio Thomas Addis Brady.
William John Buchholtz.
John Samuel Chism.
Adolph Dauber.
Cyrus Justin Davis.
August Eipper.
Louis Albert Elisburg.
George Christopher Goeppner.
Grove Greene.
Frank Preston Haeseler.
Albert Henry Heidbreder.

Joseph Anthony Hellmuth.
Charles Herbold.
Alva Andrew Johnson.
Walter August Jungk.
John Wright Martin.
Zebina Earle Marvin.
Alonzo Edward Meinzer.
Albert Michaelmann.
Jay Howard Mitchell.
Howard Arthur Nickerson.
Luther Hansford Phipps.
Emil Emil Pick.
Frank Joseph Pokorney.
Walter Thomas Price.
William Conrad Reuter.
Andrew Jackson Robson.
Charles Howard Schimelfenig.
Jacob Schrobt.
Daniel Peter Seibert.
William Edward Snyder.
Isa Belle Sturges.
Harold Gideon Swanson.
George Owen Taylor.
Raymond Eugene Taylor.
DeWitt Snow Vannatta.
Frederick Wilhelm Woelz.
William Zerbst.

HOLDERS OF SCHOLARSHIPS AND COMMISSIONS

HONORARY SCHOLARSHIPS

Cook,	Barrett, George F.,	Chicago.
McDonough,	Provine, L. H.,	Macomb.
Marshall,	Ponzer, Ernest W.,	Henry.
Williamson,	Capron, Clyde,	Marion.
Winnebago,	Temple, Harry E.,	Elida.
Woodford,	Ray, Walter T.,	Eureka.

STATE SCHOLARSHIPS (P. 269)

Adams,	Luther, Otto,	Quincy.
Bond,	Wolleson, Herbert	Belleville.
Boone,	Dake, Leroy G.,	Harvard.
Bureau,	Cook, William A.,	Urbana.
Champaign,	Black, Alice M.,	Champaign.
Champaign,	Draper, Charlotte E.,	Champaign.
Champaign,	Booker, Helen E.,	Champaign.
Coles,	Stubbins, Lewis C.,	Mattoon.
Coles,	Frost, Frank G.,	Gays.
Cook, 4th Sen. Dist.,	Greene, Charles T.,	Chicago.
Cook, 5th Sen. Dist.,	Schroeder, Curt A.,	Chicago.

Cook, 11th Sen. Dist.,	Padden, Edward J.,	Chicago.
Cook, 12th Sen. Dist.,	Dolkart, Leo	Chicago.
Cumberland,	Lindley, Walter C.,	Neoga.
DeKalb,	Radley, Guy R.,	Sandwich.
DeKalb,	Hall, Elizabeth T,	Oregon.
DeWitt,	Tull, Effie M.,	Farmer City.
DuPage,	Farrar, Floyd J.,	Downers Grove.
Edgar,	Thompson, McDonald,	Isabel.
Edgar,	Dayton, Laura,	Paris.
Ford,	Barr, John,	Urbana.
Fulton,	Whitehouse, Edith U.,	Canton.
Grundy,	Rose, Fred W.,	Mazon.
Hancock,	Smith, Roy,	Colusa.
Iroquois,	Pletcher, Nuba M.,	Hoopeston.
Iroquois,	Newton, Fred E.,	Onarga.
Kane,	Hoppin, Charles A.,	Aurora.
Kane,	Salb, Albert,	Elgin.
Kankakee,	Zartman, Lester W.,	Grant Park.
Knox,	Sussex, James W.,	Abingdon.
Lake,	Kemp, John E.,	Lake Forest.
Lee,	Burnham, Edna S.,	Dickson.
Livingston,	Bundy, Ralph P.,	Urbana.
McHenry,	Gilkerson, Aletha,	Hampshire.
McHenry,	Stevens, Lucia A.,	Marengo.
McLean,	Reardon, Neal D.,	Boynton.
McLean,	Hall, John C.,	Downs.
Macon,	Woods, William T.,	Ludlow.
Macon,	Lytle, Ernest B.,	Decatur.
Macon,	Davis, Cleon L.,	Mt. Zion.
Macoupin,	Richardson, Robert E.,	Shipman.
Macoupin,	Otwell, Allen M.,	Plainview.
Madison,	Mojonnier, Timothy,	Highland.
Marshall,	Munsen, Andrew,	Ohio.
Mercer,	Drury, Ralph S.,	New Boston.
Montgomery,	DeMotte, Roy J.,	Taylorville.
Montgomery,	Chacey, Anna O.,	Hillsboro.
Moultrie,	Harshman, Lucius R.,	Sullivan.
Ogle,	Brayton, Louis F.,	Mt. Morris.
Ogle,	Waterbury, Leslie A.,	Polo.
Ogle,	Richey, John J.,	Polo.
Peoria,	Burkhalter, Wayne E.,	Peoria.

Piatt,	Hinkle, Ida M.,	Bement.
Piatt,	Mitchell, Annie,	Bement.
Pike,	Lummis, Jessie I.,	Quincy.
Pope,	Bell, Arthur T.,	Azotus.
Richland,	Coen, Homer C.,	Olney.
St. Clair,	Updike, Hector,	Belleville.
Sangamon,	Marsh, Albert L.,	Pana.
Sangamon,	Williams, Simon,	Illiopolis.
Stark,	Stewart, Miles V.,	Toulon.
Stark,	Berfield, Clyde,	Toulon.
Stephenson,	Fisher, John W.,	Orangeville.
Vermilion,	Hayes, Z. Bernice,	Rankin.
Vermilion,	Stanley, Otis O.,	Champaign.
Vermilion,	Price, John R.,	Danville.
Warren,	Malcolm, Charles W.,	Roseville.
Whiteside,	Warner, Harry J.,	Prophetstown.
Will,	Reeves, George I.,	Wauponsee.
Winnebago,	Johnson, Albert M.,	Kishwaukee.

AGRICULTURAL SCHOLARSHIPS (P. 271)

Adams,	Meatheringham, John E.,	Camp Point.
Boone,	Bennett, Samuel A.,	Belvidere.
Bureau,	Bryant, Arthur W.,	Princeton.
Calhoun,	Greer, Owen J.,	Rushville.
Carroll,	Hendrick, Lewis C.,	Milledgeville.
Champaign,	Stearns, Fred C.,	Mahomet.
Christian,	Dalbey, Dwight S.,	Taylorville.
Clay,	Dorsey, Clarence B.,	Moro.
Clinton,	Beckmeyer, John G.,	Buxton.
Cook, 4th Cong. Dist.,	Wolf, Edd,	Farina.
Cook, 5th Cong. Dist.,	Scudder, Harry D.,	Chicago.
Cook, 6th Cong. Dist.,	Hopps, Stephen A.,	LaMoille.
Crawford,	Laughead, Charles W.,	Flat Rock.
Cumberland,	Hopps, Clifford C.,	LaMoille.
Dewitt,	Wampler, Edgar A.,	Hammond.
Douglas,	Howell, Carrie B.,	Urbana.
DuPage,	Howard, Wallace L.,	Sheffield.
Edgar,	Fessant, Francis J.,	Sandford, Ind.
Effingham,	Bernhard, Susanna S.,	Shumway.
Edwards,	Jordan, James M.,	Savoy.
Fayette,	Bonnell, William L.,	Elondale.

Ford,	Richardson, George M.,	Williamsville.
Fulton,	Lloyd, Robert C.,	Canton.
Hamilton,	Walcher, Charles E.,	Millersville.
Hancock,	Worthen, Edmund L.,	Warsaw.
Henderson,	Beall, Allen L.,	Stronghurst.
Henry,	Finley, Joseph O.,	Oneida.
Iroquois,	Hermann, Ernest Meier,	Woodworth.
Jackson,	Wells, Fred M.,	Moline.
Jefferson,	Haight, Samuel J., Jr.,	Mendota.
Kane,	Basting, Ferdinand, Jr.,	Yuton.
Kankakee,	Viall, Frank L.,	Manteno.
Kendall,	Fellingham, Clark H.,	Verona.
Knox,	Marks, David S.,	Abingdon.
Lake,	Huson, George T.,	Ft. Hill.
Lawrence,	Montgomery, William H.,	Aledo.
Livingston,	Genseke, Edward W.,	Streator.
McHenry,	Finch, Jesse P.,	Verona.
McLean,	Virgiel, Louis,	Ellsworth.
Macon,	Wade, Albert E.,	Decatur.
Madison,	Simonson, Rollo J.,	White Oak.
Marion,	Thompson, Clarence,	Champaign.
Marshall,	Judd, Herbert R.,	Wenona
Mason,	Stone, Walter W.,	Mason City.
Massac,	Oakes, Arthur M.,	Metropolis.
Mercer,	Sandquist, William A.,	Victoria.
Morgan,	McWard, Robert A.,	Palmer.
Perry,	Scott, Philip C.,	Kempton.
Piatt,	Pease, Clarence Everett,	Cisco.
Pope,	Hacker, George,	Golconda.
Pulaski,	Endicott, Robert B.,	Villa Ridge.
Putnam,	Mills, Ernest B.,	Mt. Palatine.
Randolph,	Leas, Ernest O.,	St. Joseph.
Rock Island,	Eckhardt, William G.,	Buffalo Prairie.
St. Clair,	Eidmann, Gustav H.,	Mascoutah.
Saline,	Coleman, Clyde B.,	New Windsor.
Sangamon,	Ladage, Fred W.,	Woodside.
Scott,	Schuppel, Henry C.,	Barclay.
Schuyler,	Brown, Clyde E.,	Rushville.
Shelby,	Jenkins, Elbert A.,	Tower Hill.
Stephenson,	Stocks, Harry B.,	Eleroy.
Tazewell,	Scanlan, Francis W.,	Avon.

Vermilion,	Smith, Charles E.,	Rossville.
Wabash,	Ewald, John J.,	Belmont.
Warren,	Dickson, Rolland O.,	Disco.
Wayne,	Wierman, Charles L.,	Lostant.
White,	Thompson, Albert A.,	Norris City.
Whiteside,	Riordon, Charles B.,	Garden Plain.
Will,	Geuther, Edward L.,	Frankfort Station.
Winnebago,	Temple, Ralph William,	Elida.

COMMISSIONS AS BREVET CAPTAINS, ILLINOIS NATIONAL GUARD, ISSUED BY THE GOVERNOR IN 1899

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Major, W. A. Hawley.
Adjutant, O. L. Housel.
Sergeant Major, C. E. Wetherbee.
Drum Major, R. P. Shimmin.

Company A—Captain, E. G. Hines; First Lieutenants, R. S. Wiley, H. W. Baker; First Sergeant, I. M. Western; Sergeants, G. F. Barrett, G. I. Reeves, W. C. Short, J. M. Farrin.

Company B—Captain, J. P. Kratz; First Lieutenants, G. R. Smith, T. I. Fullenwider; First Sergeant, H. F. McAnally; Sergeants, E. H. Carr, F. B. Falkenburg, H. F. Post, L. A. Waterbury.

Company C—Captain, C. L. Eddy; First Lieutenants, J. G. Appelquist, C. H. Chapman; First Sergeant, L. E. Curfman; Sergeants, L. L. Tallyn, G. Gibbs, Jr., F. J. Farrar, T. A. Newbold.

Company D—Captain, W. G. Palmer; First Lieutenants, W. G. Foster, S. F. Van Patten; First Sergeant, R. L. Ford; Sergeants, W. P. Ireland, J. C. Jones, L. G. Parker, T. L. Harris.

Battery—First Lieutenant, C. L. Logue; First Sergeant, B. W. Hicks; Sergeants, H. B. Ketzle, W. H. Fursman.

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Learning and Labor

CATALOG

OF THE

UNIVERSITY OF ILLINOIS

(POSTOFFICE, URBANA OR CHAMPAIGN, ILL.)

1900-1901

URBANA, ILLINOIS
PUBLISHED BY THE UNIVERSITY
1901

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THE UNIVERSITY CALENDAR

1901-1902

Sept. 11, 1901 to Jan. 30, 1903.

1901. FIRST SEMESTER

Sept. 11, Wednesday.	Entrance Examinations begin.
Sept. 16, 17, Monday and Tuesday.	Registration Days.
Sept. 18, Wednesday.	Instruction begins.
Nov. 4, Monday.	Latest date for Announcing Subjects of Theses.
Nov. 28, Thursday.	Thanksgiving Day.
Dec. 21, Saturday.	Holiday Recess begins.
1902.	
Jan. 6, Monday.	Instruction resumed.
Jan. 31, Friday.	First Semester ends.

SECOND SEMESTER

Feb. 3, Monday.	Instruction begins.
May 14, 15, 16, Wednesday to Friday.	University High School Conference.
May 16, Friday evening.	Interscholastic Oratorical Contest.
May 15, 16, 17, Thursday to Saturday.	Public School Art Exhibit.
May 17, Saturday.	Interscholastic Athletic Meet.
May 26, Monday.	Hazelton Prize Drill.
May 27, Tuesday.	Competitive Drill.
May 30, Friday.	Latest Day for Acceptance of Theses.
June 8, Sunday.	Baccalaureate Address.
June 9, Monday.	Class Day.
June 10, Tuesday.	Alumni Day.
June 11, Wednesday.	Thirty-first Annual Commencement.

FIRST SEMESTER

Sept. 10, Wednesday.	Entrance Examinations begin.
Sept. 15, 16, Monday and Tuesday.	Registration Days.

Sept. 17, Wednesday.	Instruction begins.
Nov. 3, Monday.	Latest date for Announcing Subjects of Theses.
Nov. 27, Thursday.	Thanksgiving Day.
Dec. 20, Saturday.	Holiday Recess begins.
1903.	
Jan. 5, Monday.	Instruction resumed.
Jan. 30, Friday.	First Semester ends.

1901

SEPTEMBER

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UNIVERSITY OF ILLINOIS

LOCATION

The University of Illinois is situated in Champaign County, in the eastern central part of the state between the cities of Champaign and Urbana, within the corporate limits of the latter. It is one hundred and twenty-eight miles south of Chicago, at the junction of the Illinois Central, the Cleveland, Cincinnati, Chicago and St. Louis, and the Wabash railroads. The country around is a rich and prosperous agricultural region. The cities of Urbana and Champaign have a combined population of about 15,000.

HISTORY

In 1862 the national government donated to each state in the Union public land scrip in quantity equal to 30,000 acres for each senator and representative in congress; "for the endowment, support, and maintenance of at least one college, whose leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts * * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

On account of this grant the state pays the University, semi-annually, interest at the rate of five per cent. on about $535,000, and the University owns about 5,000 acres of unimproved land, worth, with deferred payments on land contracts, approximately, $75,000.

To secure the location of the University several counties entered into competition by proposing to donate to its use

specified sums of money, or their equivalent. Champaign County offered a large brick building in the suburbs of Urbana, erected for a seminary and nearly completed, about 1,000 acres of land, and $100,000 in county bonds. To this the Illinois Central Railroad added $50,000 in freight. The General Assembly accepted this offer May 8, 1867.

The state has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property and assets is estimated at $1,900,000.

The institution was incorporated February 28, 1867, under the name of the Illinois Industrial University, and placed under the control of a Board of Trustees, constituted of the Governor, the Superintendent of Public Instruction and the President of the State Board of Agriculture, as *ex-officio* members, and twenty-eight citizens appointed by the Governor. The chief executive officer, usually called President, was styled Regent, and was made *ex officio* a member of the Board, and presiding officer both of the Board of Trustees and of the Faculty.

In 1873 the Board of Trustees was reorganized, the number of appointed members being reduced to nine and of *ex-officio* members to two—the Governor and the President of the State Board of Agriculture. In 1887 a law was passed making membership elective, at a general state election, restoring the Superintendent of Public Instruction as an *ex-officio* member. There are, therefore, now three *ex-officio* members and nine by public suffrage. Since 1873 the President of the Board has been chosen by the members from among their own number for a term of one year.

The University was opened to students March 2, 1868, when there were present, beside the Regent, three professors and about fifty students. During the first term another instructor was added, and the number of students increased to 77—all young men.

During the first term instruction was given in algebra. geometry, physics, history, rhetoric, and Latin. Work on

the farm and gardens or about the buildings was at first compulsory for all students, but in March of the next year compulsory labor was discontinued, save when it was made to serve as a part of class instruction. A chemical laboratory was fitted up during the autumn of 1868. Botanical laboratory work began the following year. In January, 1870, a mechanical shop was fitted up with tools and machinery, and here was begun the *first shop instruction* given in any American university. During the summer of 1871 the Wood Shops and Testing Laboratory, burned June 9, 1900, was erected and equipped for students' shop work in both wood and iron.

By vote, March 9, 1870, the Trustees admitted women as students. During the year 1870-71 twenty-four availed themselves of the privilege. Since that time they have constituted from one-sixth to one-fifth of the total number of students.

By the original state law, instead of the usual diplomas and degrees, certificates showing the studies pursued and the attainments in each were given. The certificates proved unsatisfactory to the holders, and in 1877 the legislature gave the University authority to confer degrees.

In 1885 the legislature changed the name of the institution to the "University of Illinois."

During the same session of the legislature a bill was passed transferring the *State Laboratory of Natural History* from the Illinois State Normal University to the University of Illinois. This Laboratory was created by law for the purpose of making a natural history survey of the state, the results of which should be published in a series of bulletins and reports, and for the allied purpose of furnishing specimens illustrative of the flora and fauna of the state to the public schools and to the state museum. For these purposes direct appropriations are made by the legislature from session to session. A large amount of material has been collected, and extended publications have been made in both the forms above mentioned.

By an act approved March 2, 1887, the national government appropriated $15,000 per annum to each state for the purpose of establishing and maintaining, in connection with the colleges founded upon the congressional act of 1862, agricultural experiment stations, "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." Under this provision the *Agricultural Experiment Station* for Illinois was placed under the direction of the Trustees of the University, and a part of the University farm, with buildings, was assigned for its use. At least one bulletin of results is published every three months, and the copies are gratuitously distributed over the state. Editions of 18,000 copies are now issued.

For the more complete endowment of the state institutions founded upon the act of 1862, the congress of the United States, by a supplementary law passed in 1890, made further appropriations. Under this enactment each such college or university received the first year $15,000, the second $16,000, and thereafter was to receive $1,000 per annum additional to the amount of the preceding year, until the amount reached $25,000, which sum was to be paid yearly thereafter.

The Chicago College of Pharmacy, founded in 1859, became the *School of Pharmacy of the University of Illinois* May 1, 1896. Its rooms are at 465 State Street, Chicago.

At the meeting of the Board of Trustees of the University held Dec. 8, 1896, upon recommendation of President Draper, the Trustees voted to take steps looking to the organization of a law school. Appropriations were made for salaries, for the purchase of books, and for incidental expenses. Pursuant to this action of the Board of Trustees, the *School of Law* was organized during the following spring and summer, and was opened Sept. 13, 1897. The course as originally planned covered two years, conforming

to the existing requirements for admission to the bar in Illinois. The supreme court of the state, however, announced, in November following, rules covering examinations for admission to the bar which made three years of study necessary, and the course of study in the Law School was immediately rearranged on that basis. Feb. 9, 1900, the name was changed, by vote of the Board of Trustees, to *College of Law.*

Negotiations looking to the affiliation of the College of Physicians and Surgeons, of Chicago, with the University, which had been going on for several years, were concluded pursuant to action taken by the Board of Trustees upon definite propositions submitted by the College of Physicians and Surgeons to the Board at its meeting of March 9, 1897. According to the agreement made, the College of Physicians and Surgeons became on April 21, 1897, the *College of Medicine of the University of Illinois.* The College is located at 813 W. Harrison Street, Chicago.

At the meeting of the Board of Trustees held April 22, 1897, the matter of the appointment of a librarian was considered by the Board and referred to a committee. This action of the Board was taken with a view of bringing to the University the School of Library Economy, which had been established in 1893 at the Armour Institute of Technology, in Chicago, and of securing the Director of that school for librarian of the University library. These plans were carried out and the *State Library School* was opened at the University in September, 1897.

BUILDINGS AND GROUNDS

The land occupied by the University and its several departments embraces about 210 acres.

The *Chemical Laboratory* is a building 75 by 120 feet, and two stories high, with basement. It contains general laboratories for students, instructors' laboratories, lecture rooms, store rooms, scale rooms, and various apartments for special purposes.

Engineering Hall has a frontage of 200 feet, a depth of 76 feet on the wings and 138 feet in the center. The first story contains the laboratories of the department of physics, the drafting seminary and one of the recitation rooms of the department of electrical engineering, and the masonry laboratories and instrument rooms of the department of civil engineering. The second story contains the lecture room and the preparation rooms of the department of physics, the recitation and drawing rooms, cabinets, and studies of the departments of civil and municipal engineering, and the main office of the department of electrical engineering. The third story contains the elementary laboratory of the department of physics, the drawing rooms, lecture rooms, cabinets, and studies of the mechanical departments, as well as the library, the office, and the faculty parlor. The fourth story is devoted to the department of architecture, and contains drawing and lecture rooms, cabinets, a photograph studio, and a blue-print laboratory.

The Wood Shops and Testing Laboratory was, in June, 1900, burned, and the work which was previously carried on in that building is now done largely in the basement of the Mechanical and Electrical Engineering Laboratory.

It is expected that a new building for this work will be ready for use by September, 1901.

The Metal Shops is a one-story brick building, 50 by 250 feet. It contains a lecture room, two office rooms, a machine shop, a foundry, and a forge shop. The machine shop is 48 by 140 feet. Power is supplied by a 20 H. P. electric motor. A three-ton traveling crane of 12 foot span covers the center of the floor for the entire length, extending over a covered driveway between the machine shop and foundry.

The Mechanical and Electrical Engineering Laboratory is a pressed brick building, two stories high, 100 feet long and 50 feet wide, with a one-story wing 90 feet long and 50 feet wide. There is also a basement under the main part, containing some special testing rooms, store rooms, and the toilet and wash rooms.

The Central Heating Station is a brick building, 55 by 120 feet. It contains the apparatus used for heating the buildings on the campus. An annex contains the pump room and the stock room. The pipes of the heating system and the wires for power and light are carried from the Central Heating Station to the several buildings through brick tunnels 6½ feet high by 6 feet wide. The length of tunnel thus far constructed is 1,800 feet.

The Armory, 100 by 150 feet, in one grand hall, gives ample space for company and battalion maneuvers and for large audiences upon special occasions.

Natural History Hall is 134 by 94 feet, with basement, two main stories, and an attic. It is occupied by the departments of botany, zoölogy, physiology, mineralogy, and geology, for each of which there are laboratories, lecture rooms, and offices; it also contains the office and equipments of the State Laboratory of Natural History, and of the State Entomologist. There are six laboratory rooms on each of the main floors—sufficient altogether to accommodate two hundred students, besides offering abundant facilities for the private work of the instructors.

The Astronomical Observatory is in the form of the letter T, the stem of which extends toward the south. The equatorial room, surmounted by the dome, is at the intersection of the stem and bar of the T. Besides the equatorial room the Observatory contains four transit rooms, a clock room, a recitation room, a study, and dark rooms for photographic purposes.

University Hall occupies three sides of a quadrangle, measuring 214 feet in front and 122 feet upon the wings. It is devoted almost exclusively to class rooms.

The Library Building is 167 by 113 feet, with a tower 132 feet high. The main floor contains the reference room, the reading room, the conversation room, the Library School lecture room, and the delivery room, which opens into the second story of the book-stack. The second floor contains the Library School class room, three seminary rooms, the

Bolter collection of insects, and the administrative offices of the University. The basement contains well lighted rooms, which are at present used for various purposes. The book-stack is a rear wing to the building, separated from the rest of it by a fireproof wall. The stack will eventually contain five stories, and will accommodate 150,000 volumes. At present but three stories are fitted with shelving.

The Agricultural Building has been recently completed at a cost of $150,000. It consists of four separate structures built around an open court and connected by corridors. The main building is 248 feet long, from 50 to 100 feet in depth and three stories high, and contains offices, class rooms, and laboratories for the departments of agronomy, animal husbandry, dairy husbandry, horticulture, and veterinary science; offices of the State Entomologist; the chemical laboratory of the Experiment Station; commodious administration rooms; an assembly room with a seating capacity of 500, and on each floor a fireproof vault for records. The other three buildings are each 45 by 116 feet and two stories high; one is for dairy manufactures, one for farm machinery, and one for veterinary science and stock judging. These buildings are of stone and brick, roofed with slate, and contain, all told, 113 rooms and a total floor space of nearly two acres. An adjacent glass structure serves the departments of agronomy and horticulture. There are, in addition to these buildings, a veterinary hall, four dwellings, three large barns, and a greenhouse.

THE GYMNASIUMS

The Men's Gymnasium, which occupied the second story of the Wood Shops and Testing Laboratory, was, last June, burned, and the gymnasium has since that time been quartered in the Armory. A special appropriation was made by the Board of Trustees with which a moderate amount of equipment was bought. It is expected that a new gymnasium will be ready for use by September, 1901.

The Women's Gymnasium occupies very attractive quarters in Natural History Hall, and is fully equipped. The pastime grounds near by, in use through the year when the weather permits, have a sixteen-lap running track, eight tennis courts, two basket ball fields, and space for handball, hurdling, and other desirable amusements. Under suitable restrictions, at certain hours, the rooms are open for exercise to those who are not enrolled in the classes.

LABORATORIES

SCIENCE LABORATORIES*

The *botanical, geological, physiological, and zoölogical laboratories* are in Natural History Hall.

The *chemical laboratory* occupies the building of the same name, already described.

The *physical laboratory* is in Engineering Hall. It is provided with piers, a constant temperature room, and other conveniences for measurement work.

The *psychological laboratory,* in University Hall, is well provided with apparatus of many different kinds for use in experimental study, research, and instruction.

ENGINEERING LABORATORIES

The *cement laboratory* of the department of civil engineering occupies rooms in Engineering Hall.

The *electrical engineering laboratory* occupies space on three floors of the Mechanical and Electrical Engineering Laboratory.

The *mechanical engineering laboratory* occupies the rear wing of the Mechanical and Electrical Engineering Laboratory.

SPECIAL LABORATORIES FOR RESEARCH

The *chemical laboratory of the Agricultural Experiment Station* and the *student laboratory* for the study of fertility

*For a more detailed account of these laboratories, see under the appropriate College.

are situated on the third floor of the Agricultural Building, as are also the *physical* and *bacteriological laboratories* for the examination of soils.

The laboratory rooms of the *State Laboratory of Natural History* are in Natural History Hall.

A *Biological Station*, equipped for field and experimental work in aquatic biology, is maintained on the Illinois River by the State Laboratory of Natural History. It has its separate staff, but is open to students of the University at all times, on application, and during the summer months to special students not connected with the University.

A *laboratory for sanitary water analysis* has been equipped with all necessary appliances, and chemical investigation of the water supplies of the state is carried on.

COLLECTIONS*

AGRICULTURAL

A large room in the Agricultural Building is devoted to the exhibition of the products of the industrial arts, especially of agriculture. Prominent among the agricultural specimens exhibited is an excellent collection of the subspecies and varieties of Indian corn. There is also a collection of small grains and of grasses; a collection of fibers in various states of manufacture, and a large collection illustrating the forestry of Illinois, Florida, and California. The exhibits made by the University at the Centennial and at the Cotton Exposition at New Orleans find a permanent abode here; large additions have also been made of materials received from the Columbian Exposition of 1893.

BOTANICAL

The herbarium contains nearly all the species of flowering plants indigenous to Illinois, including a complete set of grasses and sedges. The flora of North America is fairly

*For a more detailed account of the collections in the different departments, see the appropriate subject under each college.

well represented, and a considerable collection of foreign species has been made. A collection of fungi includes a full set of those most injurious to other plants, causing rusts, smuts, molds, etc. A collection of wood specimens from two hundred species of North American trees well illustrates the varieties of native wood.

Plaster casts represent fruits of many of the leading varieties as well as interesting specimens of morphology, showing peculiarities of growth, effects of cross-fertilization, etc.

ENGINEERING

The following departments of the College of Engineering have made extensive and valuable collections, which will be found in rooms in Engineering Hall:

ARCHITECTURE

A large number of specimens of stone, bricks, terra cotta, sanitary fixtures, casts of moldings and of ornament have been accumulated, together with some excellent specimens of industrial arts, models of structures, working drawings of important buildings, 3,000 lantern slides, 20,000 plates and photographs, and an excellent working library.

CIVIL ENGINEERING

The civil engineering department has a large room containing samples of iron, steel, wood, brick, and stone; materials for roads and pavements; models of arches and trusses, one of the latter being full-sized details of an actual modern railroad bridge. The department also possesses a very large collection of photographs and blue-print working drawings of bridges, metal skeleton buildings, masonry structures, and standard railroad construction.

ELECTRICAL ENGINEERING

The department has a collection of samples illustrating standard practice in the industrial applications of electricity. There is also a rapidly growing collection of lantern slides, photographs, blue-prints, drawings, pamphlets, and other engineering data.

MECHANICAL ENGINEERING

This department has among other things a partial set of Reuleaux models, together with models of valve gears, sections of steam pumps, injectors, valves, skeleton steam and water gauges, standard packings, steam-pipe coverings, and drop forgings. There are also fine examples of castings, perforated metal, defective boiler plates, and sets of drills, with numerous samples of oil, iron, and steel. A large number of working drawings from leading firms and from the United States Navy Department forms a valuable addition to the above collections.

GEOLOGICAL

Lithology is represented by type collections of rocks 5,500 specimens), arranged to illustrate Rosenbusch; from Voigt and Hochgesang, L. Eger, and A. Kranz; a type collection from Ward; 745 thin sections of rocks and minerals; a large number of ornamental building stones; a stratigraphic collection to illustrate Illinois geology, and a collection of Illinois soils (104).

The *mineralogical* collection is especially rich in rock-forming minerals, ores, and materials of economic value. It contains over 10,900 specimens carefully selected to meet the wants of the student, and 575 crystal models.

The *paleontological* collection (45,000 specimens) contains representative fossils from the entire geologic series. It embraces the private collections of A. H. Worthen (including 742 type specimens); Tyler McWhorter; Mr. Hertzer; 200 thin sections of corals; the Ward collection of casts, and a considerable number of special collections representing the fauna and flora of particular groups.

LIBRARY ECONOMY

A collection of books and pamphlets on library science, of library reports and catalogs, of mounted samples showing methods of administration in all departments, and of labor-saving devices and fittings has been made, and is arranged by

the Dewey Decimal classification in the Library School seminary room.

ZOÖLOGICAL

The *zoölogical* collections have been specially selected and prepared to illustrate the courses of study in natural history, and to present a synoptical view of the zoölogy of the state.

The mounted mammals comprise an unusually large and instructive collection of the ruminants of our country, including male and female moose, elk, bison, deer, antelope, etc., and also several quadrumana, large carnivora and fur-bearing animals, numerous rodents, good representative marsupials, cetaceans, edentates, and monotremes. Fifty species of this class are represented by eighty specimens and all the orders, excepting the Proboscidea, are represented by mounted skeletons. There is also a series of dissections in alcohol, illustrating the comparative anatomy of the group.

The collection of mounted birds includes representatives of all the orders and families of North America, together with a number of characteristic tropical, Bornean, and New Zealand forms. The collection is practically complete for Illinois species. There is also a fine collection of the nests and eggs of Illinois birds. A series of several hundred unmounted skins is available for the practical study of species, and the internal anatomy is shown in alcoholic dissections, and in mounted skeletons of all the orders.

The cold-blooded vertebrates are represented by a series of mounted skins of the larger species, both terrestrial and marine; mounted skeletons of typical representatives of the principal groups; alcoholic specimens, both entire and dissected, and casts. The alcoholics include series of the reptiles, amphibians and fishes, the latter comprising about three hundred species. The dissections illustrate the internal anatomy of the principal groups. The casts represent about seventy-five species, nearly all fishes.

The Mollusca are illustrated by alcoholic specimens of

all classes and orders, and dissections showing the internal anatomy of typical forms. There are several thousand shells belonging to seventeen hundred species. The collection of Illinois shells is fair but incomplete.

The collection of insects has been greatly extended and enriched by the Bolter Collection, donated to the University by the executors of the estate of the late Andreas Bolter, of Chicago, which now contains over 16,000 species, represented by about 120,000 specimens, named, labeled, and systematically arranged.

The lower invertebrates are represented by several hundred dried specimens and alcoholics, and by a large series of the famous Blaschka glass models.

The embryology of vertebrates and invertebrates is illustrated by several sets of Ziegler wax models, and numerous series of slides, sections, and other preparations.

In addition to the above, the extensive collections of the State Laboratory of Natural History are available for illustrative purposes, as well as for original investigation by advanced students.

ART GALLERY

The University art gallery was the gift of citizens of Champaign and Urbana. It occupies a room in the basement of Library Building, and furnishes an excellent collection of models for students of art. In sculpture it embraces thirteen full-size casts of celebrated statues, forty statues of reduced size and a large number of busts and bas-reliefs, making in all over four hundred pieces. It includes also hundreds of large autotypes, photographs, and fine engravings, representing many of the great masterpieces of painting of nearly all the modern schools, and a gallery of historical portraits, mostly large French lithographs, copied from the great national portrait galleries of France.

Other collections of special value to art students embrace a large number of casts of ornament from the Alhambra and other Spanish buildings, presented by the Spanish govern-

ment; a set of casts from Germany, illustrating German renaissance ornament; a series of art works from the Columbian Exposition; large numbers of miscellaneous casts, models, prints, and drawings, such as are usually found in the best art schools, and a model in plaster and a complete set of drawings of a competitive design by Henry Lord Gay for a monument to be erected in Rome, commemorative of Victor Emmanuel, first king of Italy.

LIBRARY FACILITIES.

The *library* contains 46,000 volumes and 4,500 pamphlets. The reading room contains 544 periodicals. The library of the State Laboratory of Natural History and that of the Agricultural Experiment Station contain about 9,500 volumes and 11,000 pamphlets. The Pedagogical Library in the rooms occupied by the Department of Education consists of some 3,000 books and pamphlets. It is very full in modern text-books and contains the courses of study of nearly all the large city school systems. All these libraries are open to students of the University.

The Public Library of the City of Champaign has recently become the possessor of the valuable library of western history collected by the late Edward G. Mason, Esq., President of the Chicago Historical Society. The collection is thus made accessible to University students.

The library and the reading room are open every day, except Sunday, from 8 a. m. until 5 p. m., and from 6:30 p. m. until 9. p. m. on Mondays, Tuesdays, Wednesdays and Thursdays.

ADMISSION

Applicants for admission to the freshman class must be at least sixteen years of age.

Entrance may be made at any time, provided the candidate is competent to take up the work of the classes then in progress; but it is better to begin upon the first collegiate day in September.

Admission to the freshman class of the University may be obtained in one of three ways: (a) by certificate from a fully accredited high school; (b) by examination; (c) by transfer of credits from some other college or university.

ADMISSION BY CERTIFICATE FROM ACCREDITED HIGH SCHOOLS

The University employs a high school visitor, whose business it is to inspect the high schools of the state. The University bears the expense of such inspection, but does not send the visitor to any school not already accredited until he receives from it a request for such visit and a report with regard to the work it is doing which shows that its course of study is such in quantity and quality as to be worth the time and attention of the University. After inspecting a school the visitor reports upon it to the Faculty of the University, and upon approval the school is added to the list of accredited schools. Students coming to the University from an accredited school are excused from entrance examinations in those subjects which they have pursued there satisfactorily and which are accepted for admission to the University. The University accredits all work which is sufficiently well done. The schools in the list below are therefore not all accredited for the same amount and kind of work.

In all subjects required for admission to the University, other than those for which his school is accredited, the candidate for admission must pass an examination or take the work in the Preparatory School of the University.

Candidates for admission from accredited schools must file with the Registrar, upon entrance, a certificate of graduation and a certified list of the preparatory studies for which they received credit in the high school. Blanks for these certificates must be obtained from the Registrar in advance, and it is better to forward them to him for approval before registration days.

LIST OF ACCREDITED SCHOOLS.

School	Superintendent	Principal
Aledo	J. W. Collins	F. N. Taylor
Alton	R. A. Haight	J. E. Turner
Amboy	F. W. Dunlap	F. G. Fox
Anna	A. L. Bliss	J. O. Marberry
Arcola	H. T. Wilson	Anna Rogers
Atlanta	H. H. Edmunds	Amelia Hochstein
Augusta	S. D. Faris	J. A. Mead
Aurora (East)	C. M. Bardwell	W. C. Hazzard
Aurora (West)	A. V. Greenman	Katherine Reynolds
Beardstown	S. S. Beggs	H. J. Jockisch
Belleville	H. D. Updike	H. W. Brua
Belvidere (North)	Arthur J. Snyder	Flora Fellows
Belvidere (South)	Montgomery Moore	Carrie Lindley
Bement	C. H. Andrews	Noah Young
Biggsville	(Township High School)	J. A. Strong
Bloomington	E. M. Van Petten	E. L. Boyer
Blue Island	(Township High School)	J. E. Lemon
Burlington, Ia.	Francis M. Fultz	Maurice Ricker
Bushnell	W. H. H. Miller	Flora Culp
Cairo	T. C. Clendenen	John Snyder
Cambridge	A. J. Magee	Caroline Maul
Camp Point	W. W. Wirt	Alice Durston
Canton	C. S. Aldrich	C. S. Aldrich
Carlinville	J. E. Wooters	Anna Horine
Carlyle	E. E. VanCleve	W. H. Pyle
Carrollton	E. A. Thornhill	E. A. Thornhill
Carthage	W. K. Hill	Emma J. Bell

School	Superintendent	Principal
Casey	H. L. Smith	R. A. White
Centralia	J. L. Hughes	S. H. Bohn
Champaign	Joseph Carter	Lottie Switzer
Charleston	J. K. Stableton	Wm. Wallis
Chicago—		
Austin	E. G. Cooley	Geo. H. Rockwood
Calumet	"	A. S. Hall
Englewood	"	J. E. Armstrong
English High and Manual Training	"	A. R. Robinson
Hyde Park	"	Chas. W. French
Jefferson	"	Chas. A. Cook
Lake	"	E. F. Stearns
Lake View	"	B. F. Buck
Marshall	"	L. J. Block
Medill	"	E. C. Rosseter
North Division	"	O. S. Wescott
Northwest Division	"	F. P. Fisk
South Chicago	"	C. I. Parker
South Division	"	Spencer R. Smith
West Division	"	G. M. Clayberg
Chicago Heights	(Township High School)	F. W. Schacht
Chicago Manual Training	H. H. Belfield, Director	
Chillicothe	H. M. Anderson	Kate Scarry
Chrisman	J. C. Arnold	M. L. Mohler
Clinton	E. B. Bentley	Jennie N. Good
Clinton, Ia.	O. P. Bostwick	O. H. Brainerd
Clyde	(Township High School)	H. V. Church
Cobden	J. H. Jenkins	J. H. Jenkins
Colfax	F. C. Prowdley	Edna Byers
Covington, Ind.	W. P. Hart	James F. Millis
Danville	L. H. Griffith	B. A. Sweet
Davenport, Ia.	J. B. Young	W. D. Wells
Decatur	E. A. Gastman	Frank Hamsher
DeKalb	N. D. Gilbert	Chas. E. Skinner
Delavan	F. L. Calkins	Stella Hoghton
Dixon (North)	H. V. Baldwin	Lydia Williamson
Dixon (South)	Chas. W. Groves	B. F. Bullard
Downer's Grove	O. M. Searles	Mabel Messner
Dubuque, Ia.	F. T. Oldt	J. S. Lochmann
Dundee	Julia M. Gay	Carrie M. Watson
DuQuoin	D. B. Rawlins	C. W. Houk

School	Superintendent	Principal
Dwight	G. W. Horton	Leila Britt
East St. Louis	John Richeson	C. L. Manners
Edwardsville	C. W. Parkinson	A. S. Boucher
Effingham	J. D. Foucht	S. W. Kincaid
Elgin	M. A. Whitney	E. J. Kelsey
Elgin Academy		George N. Sleight
Elmhurst Evangelical Proseminar	D. Irion,	President
Elmwood	L. E. Flanegin	Martha Gordon
Evanston	(Township High School)	H. L. Boltwood
Evansville, Ind.	W. A. Hester	Robert Spear
Farmer City	C. C. Covey	James Raibourn
Farmington	H. L. Roberts	Maude F. Tabor
Flora	H. C. Chaffin	J. N. Stephens
Freeport	R. S. Page	S. E. Raines
Fulton	M. A. Kline	Mary Conrath
Galena	J. W. Cupples	J. W. Cupples
Galesburg	W. L. Steele	F. D. Thomson
Galva	F. U. White	Hedwig M. Maul
Geneseo	A. W. Hussey	G. A. Ketcham
Gibson City	A. P. Johnson	H. M. Rudolph
Gilman	L. W. Haviland	Henrietta Kortkamp
Girard	F. E. Kennedy	Thomas E. Moore
Grand Prairie Seminary (Onarga)		O. T. Dwinell
Greenfield	H. G. Russell	Mrs. H. G. Russell
Greenville	M. G. Clark	Chas. F. Ford
Griggsville	H. C. McCarrel	Nora Simmons
Harvard	J. S. Brazier	Margaret Calvin
Harvey	(Township High School)	J. E. Cable
Havana	J. R. Sparks	Mrs. S. E. Pierce
Henry	Wm. Calhoun	Golda R. Coley
Highland Park	(Township High School)	W. A. Wilson
Hillsboro	S. T. Robinson	W. S. Harris
Hinsdale	J. M. Frost	Mary Macnair
Hoopeston	S. A. D. Harry	Chas. F. Briscoe
Jacksonville	J. W. Henninger	H. S. Weston
Jerseyville	J. Pike	E. B. Shafer
Joliet	(Township High School)	J. Stanley Brown
Kankakee	F. N. Tracy	I. E. Neff
Keokuk, Ia.	O. W. Weyer	A. A. Reed
Kewanee	A. C. Butler	Allen C. Rearick
Lacon	D. B. Burrows	Della Murch
La Grange	(Township High School)	E. R. Cole

School	Superintendent	Principal
Lanark	E. S. Hady	Mary Strickler
La Salle	(Township High School)	Chas. A. Farnam
Le Roy	C. J. Posey	Flora M. Grady
Lewistown	B. C. Moore	Estelle Jones
Lexington	R. G. Jones	Lillian Barton
Lincoln	B. E. Nelson	Jennie Kidd
Litchfield	R. C. Shelenbarger	O. W. Hoffman
Lockport	J. E. Hooton	Paul E. Prutsman
Macomb	R. C. Rennick	R. C. Rennick
Marengo	G. N. Snapp	Lillian Wherry
Marion	J. W. Asbury	F. M. Beaty
Marseilles	F. M. Kline	J. W. Maybee
Marshall	L. A. Wallace	Fannie Andrews
Mattoon	J. J. Wilkinson	Will A. Marlow
McLeansboro	J. W. Barrow	A. T. Bell
Mendota (East)	W. R. Foster	Evangeline Chowning
Mendota (West)	G. C. Griswold	Myra Howes
Metropolis	Edward Longbons	Clarence Bonnel
Minonk	E. L. Mills	Clara Mueller
Moline	W. J. Cox	W. H. Heil
Monmouth	J. C. Burns	E. Sturtevant
Monticello	J. E. Webb	Harry Pierson
Morris	P. K. Cross	Edith Post
Morrison	M. M. Warner	Mrs. P. F. Burtch
Mount Carmel	W. S. Booth	Kate Marsh
Mount Carroll	Ida M. Griggs	Mrs. Lillian Deming
Mount Morris College (Preparatory) J. G. Royer, President		
Mount Pulaski	G. B. Coffman	Clyde Capron
Mount Vernon	H. J. Alvis	Inez I. Greene
Murphysboro	(Township High School)	Ellis H. Rogers
Nashville	Albert G. Owen	H. G. Larsh
Newton	E. B. Brooks	Electa Ranson
Nokomis	H. C. Miller	Charlotte Holmes
Normal	E. A. Fritter	Charles Rice
North Park College (Chicago) D. Nyvall, President		
Oak Park	(Township High School)	C. J. Hanna
Odell	L. T. Earnheart	Pearle L. Ballard
Olney	G. D. Wham	John D. Gilbert
Onarga	G. E. Marker	Jessie Duke
Oregon	W. J. Sutherland	Adalaide M. Steele
Ottawa	(Township High School)	J. O. Leslie
Pana	Wm. Miner	A. E. Paine

School	Superintendent	Principal
Paris	J. D. Shoop	A. F. Lyle
Paxton	O. J. Bainum	J. E. McKown
Pecatonica	C. H. Ferguson	Grace Warner
Pekin	O. A. Schotts	Elizabeth Chapman
Peoria	N. C. Dougherty	A. W. Beasley
Pittsfield	W. R. Hatfield	Angie F. Wood
Plano	J. R. Freebern	Julia Patton
Polo	S. M. Abbott	Mabel Dempster
Pontiac	(Township High School)	J. E. Bangs
Princeton	(Township High School)	D. O. Barto
Quincy	A. A. Seehorn	W. F. Geiger
Ridge Farm	A. L. Starr	J. A. Graham
Riverside	A. F. Ames	Joel A. Harley
Robinson	M. N. Beeman	O. R. Hedden
Rochelle	C. F. Philbrook	Kate C. Rising
Rockford	P. R. Walker	B. D. Parker
Rock Island	H. B. Hayden	J. F. Darby
Rossville	I. A. Smothers	Frank McAnally
Rushville	N. T. Veatch	Florence Young
St. Charles	C. E. Mann	Gertrude Webster
St. Louis, Mo.	F. L. Soldan	W. J. S. Bryan
Salem	S. J. Curlee	Laura E. Meyers
Sandwich	W. W. Woodbury	Lillian Purkhiser
Savanna	W. S. Wallace	Helen Hay
Sheffield	J. B. Cleveland	H. A. Parkin
Shelbyville	G. P. Randle	R. J. Roberts
Southern Collegiate Institute (Albion)		Frank B. Hines
Sparta	S. B. Hood	L. J. Sexton
Springfield	J. H. Collins	L. M. Castle
Sterling	(Township High School)	O. L. Miller
Streator	(Township High School)	S. B. Hursh
Sullivan	E. Allen Cross	Hugh A. Bone
Sycamore	J. N. Adee	Mrs. S. E. Robinson
Taylorville	(Township High School)	W. E. Andrews
Terre Haute, Ind.	William Wiley	Charles Meek
Toulon Academy		Lewis A. Morrow
Tuscola	George F. Arps	W. D. Higdon
Urbana	J. W. Hays	J. W. Hays
Vandalia	J. N. Street	J. M. Hutchinson
Vienna	M. N. McCartney	G. H. Campbell
Virden	M. J. Loveless	G. W. Bohannan
Warren	B. F. Baker	Olivette M. Buser

School	Superintendent	Principal
Warren Academy		A. Beede
Washington	J. W. Hesler	Abbie L. Ross
Watseka	E. J. Blake	Mayme Goodale
Waukegan	W. F. Cramer	W. J. Stebbins
Waverly	S. S. Simpson	Mary Laycock
Wenona	George W. Reid	Simeon E. Boomer
Western Military Academy (Upper Alton)		A. M. Jackson
Wheaton	J. B. Russell	Nellie M. Lloyd
Whitehall	C. E. Joiner	Carl Vertrees
Wilmington	F. M. Crosby	Helen Buss
Winchester	H. D. Willard	Myrtle F. Ballard
Woodstock	C. W. Hart	Grace Francisco
Wyoming	J. B. Wallace	Rae Baldwin
Yorkville	O. R. Zoll	Nannie L. Hill

ADMISSION BY EXAMINATION

Examinations of candidates for admission to the University are held at the University in September (see program, p. 56). Each candidate must be in attendance during the whole period of the examinations.

The scholarship examinations,* held each year on the first Saturday in June, in the several counties of the state, afford an opportunity to pass a part of the entrance examinations before coming to the University.

The subjects upon which the entrance examinations are held are described below.

When text-books are named it is merely to aid in showing the requirements. Equivalents are accepted.

In all cases 36 credits are required, the term credit meaning the work in one subject continuously pursued, with daily recitations, through one of the three terms of the high school year; or, in other words, the work of sixty recitation periods of forty minutes each, or the equivalent in laboratory or other practice. Of these 36 credits, 28 must be obtained by all candidates in the subjects, and according to the valuation, stated in the prescribed list given below. The remainder of the 36 may be made up by offerings in any of

*See State Scholarships.

the subjects in the elective list given below, with the following restrictions and provisions:

1. No offering will be accepted in any one of these elective subjects unless at least equal in quantity to the minimum specified in the table. For example: Astronomy is listed for from 1 to 1½ credits. Nothing less than one term's work, that is, one credit, will be accepted, therefore, in that subject.

2. Those who wish to enter upon the courses leading to the degree of bachelor of arts must offer at least three credits in some one foreign language, chosen from among the electives, in addition to the language chosen from among the prescribed subjects in the first list. The language from the elective list may or may not be the same as that offered in the prescribed list. Those who wish to pursue the study of Latin in the University must, however, offer nine credits in Latin.

3. Those who wish to enter upon the courses leading to the degree of bachelor of science, in any line of study except agriculture, must offer solid and spherical geometry among their electives.

4. For entrance upon the agricultural courses leading to the degree of bachelor of science, *any* six credits from the elective list will be accepted instead of the six credits in foreign language; but at least two years of foreign language study in the University must be taken by those who make this option.

The amount of work in each subject which, in the judgment of the University authorities, corresponds to the minimum number of credits assigned is shown by the description of subjects below.

SUBJECTS ACCEPTED FOR ADMISSION, WITH CREDITS

Prescribed

Algebra	4 credits
English Composition	3 credits
English Literature	6 credits

French, or German, or Greek, or Latin*	6 credits
Plane Geometry	3 credits
History	3 credits
Physical or Biological Science	3 credits

Elective

Astronomy	1	to	1½	credits
Botany	1½	to	3	credits
Chemistry	2	to	3	credits
Civics	1	to	3	credits
Drawing	1	to	3	credits
French	3	to	9	credits
Geology	1½	to	3	credits
Geometry, Solid and Spherical			1	credit
German	3	to	9	credits
Greek	3	to	7	credits
History			3	credits
Latin	3	to	12	credits
Manual Training	1	to	2	credits
Physics			3	credits
Physiography	1½	to	3	credits
Physiology	1	to	3	credits
Zoölogy	1½	to	3	credits

DESCRIPTION OF SUBJECTS ACCEPTED FOR ADMISSION

1. Algebra.—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of exponents, and the analysis and solution of problems involving these.

2. Astronomy.—To obtain a single credit for entrance in astronomy, the student must pass an examination covering as much text-book work as is contained in any good text. For 1½ credits, the entrance requirement implies, in addition to the above, some degree of practical familiarity with the geography of the heavens, with the various celestial motions, and with the positions of some of the more conspicuous naked-eye heavenly bodies.

3. Botany.—A familiar acquaintance is required with the general structure of plants, and of the principal organs and their functions, derived to a considerable extent from a study of the objects; also a general knowledge of the main groups of plants, and the ability to classify and name the more common species. Laboratory note-books and herbarium collections must be presented.

4. Chemistry.—The instruction must include both text-book and laboratory work. The work should be so arranged that at least

*But see par. 4 above.

one-half of the time shall be given to the laboratory. The course, as it is given in the best high schools in two terms or three terms, respectively, will satisfy the requirements of the University for the two credits or three credits for admission. The laboratory notes, bearing the teacher's indorsement, must be presented in evidence of the actual laboratory work accomplished. Candidates for admission may be required to demonstrate their ability by laboratory tests.

5. Civics.—Such amount of study on the United States constitution, its history and interpretation, as is indicated by any of the usual high school text-books on civil government, is regarded as sufficient for one term. The work may advantageously be combined with the elements of political economy, or, better, the industrial history of the country.

6. Composition and Rhetoric.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of rhetoric. The candidate will be required to write two paragraphs of about one hundred and fifty words each to test his ability to use the English language.

7. Drawing.—Free-hand or mathematical drawing, or both. Drawing-books or plates must be submitted. The number of credits allowed depends on the quantity and quality of the work submitted.

8. English Literature.—(a) Each candidate is expected to have read certain assigned literary masterpieces, and will be subjected to such an examination as will determine whether or not he has done so. The books assigned for the next three years are as follows:

1901.—George Eliot's Silas Marner; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; Cooper's Last of the Mohicans; Tennyson's Princess; Shakespere's Merchant of Venice; Scott's Ivanhoe.

1902.—The same as 1901.

1903.—The Sir Roger de Coverley Papers; Carlyle's Essay on Burns; Coleridge's Ancient Mariner; Eliot's Silas Marner; Goldsmith's Vicar of Wakefield; Lowell's Vision of Sir Launfal; Scott's Ivanhoe; Shakspere's Merchant of Venice; Shakspere's Julius Cæsar; Tennyson's Princess.

(b) In addition to the above the candidate will be required to present a careful study of the history of either English or American Literature.

(c) The candidate will be examined on the form and substance

of one or more books, in addition to those named under (a). For 1901, 1902 and 1903 the books will be selected from the list below. The examination will be of such a character as to require a minute and thorough study of each of the works named, in order to pass it successfully.

Shakspere's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison.

Two years of high school work, with five recitations a week, will be necessary for the above preparation.

9. French.—*One year's work.*—The candidate must have a thorough knowledge of elementary grammar and the irregular verbs; must be able to pronounce correctly, and to translate simple spoken French phrases. He must have read some 300 pages of easy prose, including one modern comedy, and must be able to translate ordinary French prose at sight.

Two years' work.—In addition to the above, the candidate must show proficiency in advanced grammar, the essentials of syntax, and elementary composition. The reading of not less than 400 pages of standard authors, including two plays of Molière, is required, and the memorizing of not less than six fables or anecdotes.

Three years' work.—In addition to what has already been described, the candidate must have had further work in composition, and must have memorized not less than six poems or anecdotes. He must further have read not less than 500 pages of standard authors, including Molière, La Fontaine, and Hugo. Some acquaintance with modern lyrics is necessary.

10. Geology.—Familiarity with the matter found in Scott's Introduction to Geology, or a real equivalent. The student must be able to recognize well-marked types of crystalline and fragmental rocks, and to explain the origin of the topography of the region in which he lives. Additional laboratory and field work will be given such credit as it merits.

11. Geometry.—(a) *Plane Geometry,* which must include a thorough knowledge of the fundamental definitions and axioms of the Euclidian geometry, together with the propositions relating to lines, circles, theory of proportion and its application to similar polygons, and the special properties of regular polygons and of circles. Special emphasis is placed upon the ability to use these propositions in the solution of original numerical exercises and of supplementary theorems.

(b) *Solid Geometry,* covering the propositions relating to lines and planes in space, polyhedrons, cylinders, cones, and spheres, with their applications to the solution of original exercises.

12. GERMAN.—*One year's work.*—Elementary grammar, especially declension of articles and ordinary nouns and pronouns, use of the strong and the weak adjective, the two conjugations of verbs, with the principal parts and meanings of all the strong verbs, separable and inseparable prefixes, the use of common prepositions, the inverted and transposed sentence order. Practice in writing German sentences should accompany this work throughout the course, but the German script is not insisted upon. Besides the work in grammar, the student should read not less than 150 pages of easy narrative, or descriptive prose, giving careful attention to its translation into good English.

Two years' work.—In addition to the work outlined under the one year's requirement, the pupil should know the syntax of cases, uses of the subjunctive and infinitive, complex sentence structure, uses of modal auxiliaries and of participial constructions. The translation into German of about thirty-five pages of narrative prose should insure ready application of grammatical principles. As an additional reading requirement, from 250 to 300 pages, including one of Schiller's historical dramas, and about thirty pages of German lyrics, should be translated. Constant practice in reading German should secure an accurate pronunciation and a feeling of the rhythm and rhetorical form of the works studied.

Three years' work.—The third year's study should aim to secure an easy reading knowledge of the language. Accurate and idiomatic translations into English, constant practice in sight translation and in writing from dictation should be insisted upon. Standard prose of the grade represented by Heine, Freytag, or Dahn, not less than 100 pages, should be read, together with selections from classic poetry. Lessing's Minna von Barnhelm and Goethe's Egmont or Iphigenie auf Tauris are especially recommended. Additional work in prose composition, or in the writing of paraphrases of the texts read, should insure the ability to write simple German.

13. GREEK.—To obtain three credits, the exercises in any of the beginning books, and one book of the Anabasis, or its equivalent, must be offered. For six credits, two books of the Anabasis and three of Homer, or their equivalents, additional to the above, must be presented, together with an amount of Greek prose composition equal to one exercise a week for one year.

14. HISTORY.—At least one year in one of the following subjects: (a) The History of England and of the United States; (b) General History; (c) The History of Greece and Rome. The statement of requirements in each subject implies the use of a substantial text-book, together with some elementary training in the

use of reference books. The one-year course in General History will, for the present, be counted for entrance credit, but is not recommended. If but one year can be given to History, it is recommended that that year be devoted to the History of England and of the United States. Three additional credits may be given for a second year of more advanced work in any of the three subjects named above. When two years can be given to History, it is recommended that the subjects taken be the History of Greece and Rome followed by the History of England and of the United States.

15. LATIN.—*First year's work.*—Such knowledge of inflections and syntax as is given in any good preparatory Latin book, together with the ability to read simple fables and stories.

Second year's work.—Four books of Cæsar's Gallic War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

Third year's work.—Six orations of Cicero. The ability to write simple Latin based on the text. The simpler historical references and the fundamental facts of Latin syntax.

Fourth year's work.—The scansion of hexameter verse, six books of Vergil, with history and mythology.

16. MANUAL TRAINING.—Experience in the use of wood-working tools will be required. Forge, foundry, or machine work may be substituted for wood work. The number of credits allowed will depend upon the time spent upon the subjects and the technical knowledge obtained.

17. PHYSICAL OR BIOLOGICAL SCIENCE.—For this there may be offered any one of the following subjects or combination of subjects: Physics, one year; chemistry, one year; botany and zoölogy, each a half year.

The subjects must be taught in part by laboratory methods and the pupil's note-books must be submitted. Other evidences of work done, as illustrative drawings, collections of specimens, etc., should be presented. Examinations cover the subject-matter as presented in text-books in most common use in high schools. See also the descriptions given under the several subjects.

18. PHYSICS.—The elements of physical science as presented in such text-books as Appleton's School Physics, or Avery's Elements of Natural Philosophy, or Carhart and Chute's Elements of Physics, or Gage's Elements of Physics. The candidate must have had laboratory practice equivalent to that described in the laboratory text-books of Hall and Bergen, Allen, or Chute. The candidate's laboratory note-book will be accepted as part of the examination.

19. Physiography.—The amount and character of the work required for the minimum credit may be seen by referring to Mill's Realm of Nature, or Davis's Physical Geography.

For additional credits, the principles of climatology, ability to read physical and contour maps, interpretation of weather maps, and forecasting of weather, etc., will be considered.

20. Physiology.—For one credit are required the anatomy, histology, and physiology of the human body and the essentials of hygiene, taught with the aid of charts and models to the extent given in Martin's Human Body (Briefer Course). For more than one credit, the course must have included practical laboratory work on the part of the student. The number of credits, beyond one, will be determined in each case according to the quantity and quality of the work.

21. Zoölogy.—The instruction must include laboratory work equivalent to four periods a week for a half year besides the time required for text-book and recitation work. When the examination is taken, note-books and drawings must be presented which shall show the character of work done and the types of animals studied. The drawings are to be made from the objects themselves and not copied from illustrations, and the notes are to be a record of the student's own observation on the animals examined. The amount of equipment and character of surroundings must, of course, determine the nature of the work done and the kind of animals studied, but in any case the student should have at least a fairly accurate knowledge of the external anatomy of each of eight or ten animals distributed among several of the larger divisions of the animal kingdom, and should know something of their life histories and of their more obvious adaptations to environment. It is recommended that especial attention be given to such facts as can be gained from a careful study of the living animal. The names of the largest divisions of the animal kingdom with their most important distinguishing characters and illustrative examples, selected when practicable from familiar forms, ought also to be known.

PROGRAM OF EXAMINATIONS, SEPTEMBER 11-14, 1901

All persons who wish to enter the University in September, 1901, except those holding certificates of graduation from accredited schools and scholarship certificates, and those for whom a transfer of all entrance credits from some other college or university has already been approved, must present themselves at the Registrar's office, Library Hall,

at 9 o'clock a. m., Wednesday, September 11th. At that time applications for admission will be received, and applicants will be given all necessary directions as to examinations.

The program of examinations is as follows:

Chemistry, 2 or 3 credits	Wednesday	9:50 a. m.
Geology, 2 or 3 credits	Wednesday	9:50 a. m.
Astronomy, 1 or 1½ credits	Wednesday	11:10 a. m.
History, 3 or 6 credits	Wednesday	12:50 p. m.
Physiography, 1½ or 3 credits	Wednesday	3:20 p. m.
English Literature, 6 credits	Thursday	7:50 a. m.
English Composition, 3 credits	Thursday	10:20 a. m.
Latin, 3 or 6 credits	Thursday	12:50 p. m.
Physics, 3 credits	Thursday	3:50 p. m.
Algebra, 4 credits	Friday	7:50 a. m.
Civics, 1 to 3 credits	Friday	10:20 a. m.
Geometry, Plane, 3 credits	Friday	12:50 p. m.
Geometry, Solid, 1 credit	Friday	2:35 p. m.
Physiology, 1 to 3 credits	Friday	3:20 p. m.
German, 3 or 6 credits	Saturday	7:50 a. m.
French, 3 or 6 credits	Saturday	7:50 a. m.
German, credits 7 to 9	Saturday	10:20 a. m.
French, credits 7 to 9	Saturday	10:20 a. m.
Latin, credits 7 to 12	Saturday	12:50 p. m.
Botany, 1½ to 3 credits	Saturday	12:50 p. m.
Biology, 3 to 6 credits	Saturday	12:50 p. m.
Zoölogy, 1½ to 3 credits	Saturday	3:20 p. m.

The time for examinations in Free Hand Drawing and in Manual Training will be arranged with candidates.

ADMISSION BY TRANSFER FROM OTHER COLLEGES AND UNIVERSITIES

A person who has entered another college or university of recognized standing will be admitted to this University upon presenting a certificate of honorable dismissal from the institution from which he comes and an official statement of the subjects upon which he was admitted to such institution, provided it appears that the subjects are those required here for admission by examination, or real equivalents. Candidates, to enter the University in this way, should submit such papers to the Registrar before the time of entrance, so that all doubtful points may be cleared up in advance.

ADMISSION AS SPECIAL STUDENTS

Persons over twenty-one years of age, not candidates for a degree, may be admitted to classes, after satisfying the President and the professor in charge of the department in which such classes are taught, that they possess the requisite information and ability to pursue profitably, as special students, the chosen subjects. Such students are not matriculated; they pay a tuition fee of seven dollars and a half a semester, in addition to the regular incidental fee of twelve dollars.

In the College of Agriculture special students may be received at sixteen years of age subject to the same conditions as other special students, except that they may hold scholarships in agriculture (p. 286).

ADMISSION TO ADVANCED STANDING

After satisfying in some of the ways already enumerated all the entrance requirements for admission to the University, and after matriculating, the applicant for advanced standing may secure such standing either by examination or by transfer of credits from some other college or university.

1. *By Examination.*—Candidates for advanced standing, not from other colleges or universities, may secure such standing on examination. In the case of freshman students seeking advanced standing on the basis of their preparatory work, such standing shall be granted after satisfactory examination only, unless the applicants are from fully accredited schools. In that case a transfer of credits may be made as provided below.

2. *By Transfer of Credits.*—Credits from other colleges or universities may be accepted by the Faculty for advanced standing; but at least one year's work in residence at the University is required of all candidates for a bachelor's degree.

In all cases a certificate of honorable dismissal is required, together with a certified record of work done in the institution from which the applicant comes. These should be

presented for approval some time before the student enters for work.

Upon approval of the Faculty freshmen may receive credit for advanced work done in fully accredited high schools.

REGISTRATION

At the beginning of the first semester each student must present himself for registration within the time set for that purpose, before the formation of classes, and he must be present at the first exercise of each class he is to attend.

EXAMINATIONS

Examinations are held as often as in the judgment of the instructor the necessities of the work require. Examinations are also given at the close of each semester, on the work of the semester, in all subjects except those whose character renders it unnecessary or impracticable.

A record is kept of each student's standing.

SEMESTERS AND RECESS

The University year is divided into semesters, each covering eighteen weeks of instruction. There is a recess of two weeks at the Christmas holidays.

For dates of opening and closing, see Calendar, p. 5.

GRADUATION

In all cases credit for one hundred and thirty "semester hours" (see p. 180) is required for graduation. The candidate for a degree in any course must complete all the subjects prescribed for graduation in that course, and when, in doing this, he does not gain the necessary credit of one hundred and thirty hours, he must make up the deficiency by the election of other courses.

The combinations of studies under which a student may graduate are too numerous to describe here; they are given under the separate colleges and schools.

ADMINISTRATION OF THE UNIVERSITY

GOVERNMENT

The government of the University is vested by the Trustees primarily in the President of the University, in the Faculty, in the Council of Administration, and in the Deans.

The President is the executive head of the University.

The Dean of the General Faculty has general oversight of the instructional work of the University, and especial supervision of the graduate school. By order of the Board of Trustees he also fills the office of Vice-President.

The Dean of each college is responsible for the enforcement of all University regulations within his college.

The Council of Administration is composed of the President, the Dean of the General Faculty, the Dean of the Woman's Department and the Deans of the separate colleges. It constitutes an advisory board to the President, *and has exclusive jurisdiction over all matters of discipline.*

The Council does not exercise general legislative functions, but when any matter arises which has not been provided for by common usage or by rule of the General Faculty, and which cannot be conveniently laid over till the next meeting of the General Faculty, the Council may act upon the same according to its discretion.

The determination of the general internal policy of the University is in charge of the Faculty.

The faculties of the different colleges and schools of the University are composed of the members of the corps of instruction of these colleges and schools, and have jurisdiction over all matters which pertain exclusively to these organizations, subject always to higher University authority.

ORGANIZATION

For the purpose of more efficient administration, the University is divided into several colleges and schools. This division does not imply that the colleges and schools are educationally separate. They are interdependent and together form a unit. In addition to the courses mentioned as given in each college and school, instruction in military science and physical training is provided. The organization is as follows:

I. The College of Literature and Arts.
II. The College of Engineering.
III. The College of Science.
IV. The College of Agriculture.
V. The Graduate School.
VI. The School of Library Science.
VII. The School of Music.
VIII. The College of Law.
IX. The College of Medicine.
X. The School of Pharmacy.
XI. The School of Dentistry.

THE COLLEGE OF LITERATURE AND ARTS

The College of Literature and Arts offers—

1. General courses, offering a wide range of electives.

2. Specialized courses, or courses under the group system, including—

a. The Classical Group.
b. The English Group.
c. The German and Romanic Language Group.
d. The Latin and Modern Language Group.
e. The Philosophical Group.
f. The Political Science Group.

THE COLLEGE OF ENGINEERING

The College of Engineering offers courses—

1. In Architecture.
2. In Architectural Engineering.
3. In Civil Engineering.
4. In Electrical Engineering.
5. In Mechanical Engineering.
6. In Municipal and Sanitary Engineering.
7. In Railway Engineering.

THE COLLEGE OF SCIENCE

The College of Science offers courses arranged in six groups, as follows—

1. The Chemical and Physical Group.
2. The General Science Group.
3. The Household Science Group.
4. The Mathematical Group.
5. The Pedagogical Group.
6. The Preliminary Medical Group.

COLLEGE OF AGRICULTURE

The College of Agriculture offers courses in—

1. Agronomy.
2. Animal Husbandry.
3. Dairy Husbandry.
4. Horticulture.
5. Household Science.
6. Veterinary Science.

THE GRADUATE SCHOOL

The Graduate School offers courses in—

1. Agriculture.
2. Engineering.
3. Literature, Philosophy, and the Arts.
4. The Sciences.

An enumeration of the departments of graduate study is given at the beginning of "General Description of Courses" (p. 161), and the separate graduate courses offered are described in connection with the proper subjects in the list of courses which there follows.

THE SCHOOL OF LIBRARY SCIENCE

The School of Library Science, or the State Library School, offers a course of study, extending over four years, in preparation for the practice of the work of a librarian. The course leads to the degree of bachelor of library science.

THE SCHOOL OF MUSIC

The School of Music offers courses in vocal and instrumental music, leading to the degree of bachelor of music.

THE COLLEGE OF LAW

The College of Law offers a course of study leading to the degree of bachelor of laws.

THE COLLEGE OF MEDICINE

The College of Medicine offers a course of study leading to the degree of M.D.

THE SCHOOL OF PHARMACY

The School of Pharmacy offers a course in all branches necessary to a complete scientific and practical knowledge of pharmacy, including pharmacy, chemistry, materia medica, botany, physics, and physiology. The course leads to the degree of graduate in pharmacy or to that of pharmaceutical chemist.

THE SCHOOL OF DENTISTRY

The School of Dentistry, to be opened in October, 1901, will offer courses leading to the degree of D.D.S.

COLLEGE OF LITERATURE AND ARTS

FACULTY

Andrew S. Draper, LL.D., President.
David Kinley, Ph.D., Dean, Economics (On leave, 1900-1901).
Thomas J. Burrill, Ph.D., LL.D., Botany.
Samuel W. Shattuck, C.E., Mathematics.
Charles W. Rolfe, M.S., Geology.
Arthur W. Palmer, Sc.D., Chemistry.
Frank F. Frederick, Art and Design.
Herbert J. Barton, A.M., Latin.
Charles M. Moss, Ph.D., Greek.
Daniel K. Dodge, Ph.D., English.
Albert P. Carman, Sc.D., Physics.
Evarts B. Greene, Ph.D., History.
Katharine L. Sharp, Ph.M., B.L.S., Library Science.
George T. Kemp, M.D., Ph.D., Physiology.
Jacob K. Shell, M.D., Physical Training.
Lewis A. Rhoades, Ph.D., German.
James B. Scott, J.U.D., Public Law.
Thomas A. Clark, B.L., Acting Dean, Rhetoric.
Arthur H. Daniels, Ph.D., Philosophy.
George D. Fairfield, A.M., Romanic Languages.
Charles W. Tooke, A.M., LL.B., Public Law and Administration.
Newton A. Wells, M.P., Painting.
Edwin G. Dexter, B.Pd., Ph.D., Education.
Isabel Bevier, Ph.M., Household Science.
Edmond G. Fechét, Major U.S.A., (retired), Military.
Edgar J Townsend, Ph.D., Mathematics.
Violet D. Jayne, A.M., English.

Harry S. Grindley, Sc.D., Chemistry.
Herman S Piatt, Ph.D., Romanic Languages.
Frank Smith, A.M., Zoölogy.
George H. Meyer, A.M., Secretary, German.
Stratton D Brooks, M.Pd., Education.
Matthew B. Hammond., Ph.D., Economics and Sociology.
Jennette E. Carpenter, O.M., Physical Training.
George A Huff, Jr., Coach of Athletic Teams.
William C. Brenke, M.S., Astronomy.
Henry L. Schoolcraft, Ph.D., History.
Neil C. Brooks, Ph.D., German.
Martha J. Kyle, A.M., Rhetoric.
Henry L. Coar, A.M., Mathematics.
William A. Adams, A.B., Rhetoric and Public Speaking.
Edward J. Lake, B.S., Art and Design.
Lucy H. Carson, A.M., English.
George M. Holferty, M.S., Botany.
John H. McClellan, A.M., Zoölogy.
Justus W. Folsom, S.D., Entomology.
Nathan A. Weston, M.L., Economics.
Clarence W. Alvord, A.B., History.
Daisy L. Blaisdell, A.M., German.
Florence N. Jones, A.M., French.
Cornelia E. Simon, Household Science.
Hugh J. Graham, A.B., Rhetoric.
Helen L. McWilliams, A.B., Fellow, French.
William G. Palmer, A.B., Fellow, Latin.
Oscar L. Housel, Military.

AIMS AND SCOPE

The College of Literature and Arts includes those branches usually comprised in a department of philosophy and arts, with the exception of the natural sciences. The aim of the College is a double one: to furnish a liberal education, and to afford opportunity for specialization in literature, philosophy, and the political sciences. It is believed that this double purpose can be accomplished best by a

judicious combination of prescribed and elective studies, which, while so directing the work of the student as to secure the desired mental training, will allow him a considerable range of choice in the selection both of his main line of work and of subjects auxiliary thereto.

In conformity with this general plan, it is provided that students may graduate either under a system offering a choice of a considerable number of subjects, or under one in which the principal part of the student's work is in a single line of study, or a group of related lines. The subjects which may be selected for this special study are listed as major electives on page 70. These two systems are named respectively the general course system and the specialized course, or group, system.

The only degree given in this College is that of A.B.

THE GENERAL COURSE SYSTEM

In the General Course System it is planned to permit the student to select his studies from as wide a range of subjects as he pleases, restricted only by a certain minimum of prescribed work and by certain requirements as to the time which must be spent upon each subject in order to secure a reasonable degree of concentration. The prescribed subjects are part of the work of the first two years. So far as possible, the work of the freshman year must be made up wholly of prescribed subjects, and the rest of the prescribed work must be done in the sophomore year. Within the limits of the prescribed work, moreover, the student is permitted a choice of lines of study. For example, while a year of science is prescribed for all students, any one of the sciences may be chosen.

After finishing the prescribed subjects, each student must elect a sufficient number of courses to yield him the necessary credit for graduation. At least two electives must be pursued, each for two years, so that the student may secure twenty hours' credit in each. These two subjects are known as his majors. The word is applied in

the general course system to any subjects primarily classed in the College of Literature and Arts, in which the student secures twenty hours' credit. The subjects are listed as major electives, on page 70. If the student pursues the study of any one of these subjects for less than two years it is credited to him as a minor, as is also any subject not there listed, regardless of the time spent on it.

In the choice of his electives other than his majors, the student may take a minimum of work in each of a maximum number of subjects, or he may take a maximum amount of work in the minimum number of subjects necessary to fill up his time according to the rules of the University. The elective minor courses open to the students of the College include subjects offered in the other colleges and schools of the University. The sciences are not an integral part of the work of the College of Literature and Arts, but they are so important a part of a liberal education that every student of the College is earnestly urged to extend his study of them so far as may be. Certain courses in the College of Engineering and in the College of Agriculture, although of a somewhat technical nature, may also be counted for credit in the College of Literature and Arts. These are more particularly mentioned under "minor courses," on page 70.

REQUIREMENTS FOR GRADUATION UNDER THE GENERAL COURSE SYSTEM

Credit for 130 hours (p. 180), including the prescribed military and physical training, is required for graduation under the general course system. Every student must take the prescribed subjects; in addition, he must select at least two subjects from the list of major electives, and he must then choose work sufficient to yield him the remainder of the required number of hours.

No credit is granted in any subject unless the student pursues it for the minimum time for which any course in the subject is offered. For example, if a student elects a

course which yields two hours' credit for one semester,* he must stay in the class during the semester in order to get any credit at all. No credit is granted for less than ten hours' work in the first year of the study of any foreign language. After the first year credit may be obtained for the work of a single semester.

THE SPECIALIZED COURSE, OR GROUP, SYSTEM

A specialized, or group, course is one in which the student is required to pursue a single line of study for three consecutive years, in addition to doing the prescribed work and writing a thesis. At least twenty hours' work in the chosen subject must be done before the beginning of the senior year. No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work. The subject in which the thirty hours' work is required is called the student's major, and must be chosen from the list of major electives (p. 70).

As a rule, those students only who take a specialized course will be recommended from this College for fellowships, scholarships, and other university honors.

REQUIREMENTS FOR GRADUATION UNDER THE SPECIALIZED COURSE, OR GROUP, SYSTEM

Credit for 130 hours, including the prescribed military and physical training, together with an acceptable thesis, is required for graduation under the group system. Every student must take the prescribed subject. Not later than the beginning of his junior year he must designate the group in which he wishes to be enrolled. He must at that time choose one subject in the group as his major, the study of which, alone or with the subjects designated as specifically preparatory to it, he must pursue during the remaining two years, and secure in it at least thirty hours' credit in all. He must then select, with the approval of the head of the department

*See for example Civil Engineering 16, p. 211.

in which his major subject belongs, a sufficient number of other studies to yield him the necessary number of hours.

A student in a specialized course must also present an acceptable thesis. This thesis must be on a topic connected with his major study, and must present the results of investigation made during the last year of the student's course. The work of investigation must be the required work in the major subject, in whole or in part, during the student's senior year.

As in the general course system, no credit is given for parts of courses, and at least one full year's work must be done by those who begin a foreign language, in order to secure any credit therefor. The same work may not be credited both as major and minor.

The groups are as follows:

The *Classical Group*, including Greek and Latin as the major subjects. One of these languages must be taken for thirty, the other for twenty, hours.

The *English Group,* including the Scandinavian languages. Students in this group must take two years of French or German before the beginning of the junior year, or must be able to read one of these languages easily. Those who elect the course in language must have at least two years of German.

The *German and Romanic Language Group.* Either German or French may be taken as a major, but twenty hours' credit in the other must be secured. Besides the required work in English, all students must elect additional English sufficient to make a total of at least ten hours. Students of marked ability, who take French as a major, are advised to take the courses offered in Spanish or Italian.

The *Latin and Modern Language Group,* including Latin, German, and French. Twenty hours' credit must be obtained in the language chosen for a minor.

The *Philosophical Group,* including education, philosophy, psychology, and mathematics as major subjects. In this group the second year of the student's work is devoted

to studies specifically preparatory to the principal subject, which is itself taken up at the beginning of the third year.

Students in this group who make *philosophy* a major must, in the second year, make ten hours of credit from among these subjects: Anthropology, psychology, economics 17 (sociology), Greek 5.

Those who make *psychology* their major subject must, in their second year, make ten hours from among these subjects: Botany 1, 2; economics 17; philosophy 2, 6, 8; physiology 4; zoölogy 1.

When *education* is the major, the work specifically preparatory is logic (philosophy 1a or 1b), outlines of philosophy (philosophy 2), and elementary and educational psychology.

Those students who make *mathematics* their major work must take the courses in mathematics numbered 2, 4, 6, 7, 9, 10, 11, 15, 16, 17, and may elect as many more courses as desired. They must also make ten hours in philosophy, (including philosophy 1a or 1b), and either twenty hours in German or ten in French.

The *Political Science Group*, including economics, history, and public law and administration. All students in this group must take the three elementary courses: history 1, economics 1a and 1b, and public law and administration 1; and must also secure five hours in physiography, and at least three hours in philosophy, selected from courses 1, 2, 3, and 4. All students in the group must take at least one year's work in either French or German, before the beginning of the junior year, or must furnish satisfactory evidence of their ability to use at least one of the languages.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Advanced Algebra (Math. 1, 2); 2 or 3 hours.
English 1; 5 hours.
French 1, German 1 and 3, Greek 1, 2, or Latin 1; 10 hours.
Geometry, Solid and Spherical; 3 hours.

History, 1 or 2 and 6; 6 hours.
Logic (Philosophy 1a or 1b); 3 hours.
Military 1, 2; 5 hours.
Physical Training—
  For men, 2½ hours.
  For women, 3 hours.
Natural Science; 10 hours.
*Rhetoric 1, 3; 11 hours.
Trigonometry (Math. 3, 4); 3 or 2 hours.

ELECTIVE

MAJOR COURSES

Economics 1 to 22; 20 to 44 hours.
English 1 to 18; 20 to 40 hours.
French 1 to 4; 20 to 36 hours.
German 1, 3 to 13; 20 to 50 hours.
Greek 1 to 8; 20 to 30 hours.
History 1 to 10; 20 to 44 hours.
Latin 1 to 9; 20 to 50 hours.
Mathematics 1 to 25; 20 to 59 hours.
Education 1 to 9; 20 to 27 hours.
Philosophy 2 to 8; 20 to 21 hours.
Public Law and Administration 1 to 9; 20 to 38 hours.
Psychology 1 to 8; 20 hours.
Rhetoric 1 to 8; 20 to 35 hours.

MINOR COURSES

The necessary number of hours additional to those provided for in the prescribed subjects and the chosen major electives may be secured from any of the subjects offered in the College of Literature and Arts, or in the College of Science, the requirements for which the student can meet. But not more than twenty hours in Art and Design may be counted toward the degree nor more than five hours in physical training, including the amount prescribed. Course 12 in library science may be taken as a minor. Certain courses offered in the College of Engineering may also be chosen; as, for example, history of archi-

*Students securing an average semester grade of 85 per cent. in Rhetoric 1 will be excused from the additional requirement in Rhetoric.

tecture (Arch. 28); heating and ventilation (Arch. 13); domestic architecture (Arch. 27), etc.

The attention of young women is especially called to the courses grouped under Household Science, p. 238.

COURSE OF INSTRUCTION

All the prescribed subjects *must be finished by the end of the sophomore year.* The following statement gives the years and semesters in which they occur:

FIRST YEAR

Fifteen to eighteen hours' work a week, exclusive of military and physical training, must be chosen each semester from among the following subjects: those in italics *must be* in the list chosen. It is expected that five hours in natural science will be taken each semester from the options named below; but if one desires to pursue an extended course in physics instead, he may omit science in the freshman year and take up that subject in the sophomore year.

First Semester—

History: Mediæval and Modern European History (Hist. 1), or 19th Century History (Hist. 2); 3 or 2 hours.

Language and Literature: English 1, 5 hours; French 1, or German 1, or Greek 1, or Latin 1, 5 hours; *Rhetoric* 1, 3 hours.

Mathematics: Advanced Algebra and Trigonometry (Math. 1, 2 or 3, 4); 5 hours.

Military: Drill (Mil. 1); 1 hour.

Natural Science: Astronomy 5, or Zoölogy 10, or Botany 2, or Chemistry 1, or Physiography 1, or Entomology 1 or 2; 5 hours.

Physical Training—

For men—Physical Training 1, 3; 1¼ hours.

For women—Physical Training 7, 9; 2 hours.

Second Semester—

History: Mediæval and Modern European History (Hist. 1), 3 hours continued; or 19th Century History (Hist. 2), continued, and Roman History (Hist. 6), 5 hours.

Language and Literature: French 1, or German 3, or Greek 2, or Latin 1, continued as begun in the first semester; 5 hours. *Rhetoric* 1, continued; 3 hours.

Mathematics: Solid and Spherical Geometry; 3 hours.

Military: Tactics and Drill (Mil. 1, 2); 2 hours.

Natural Science: Astronomy 4, or Botany 1, or Chemistry 2 or 2a or 3a or 3b, or Geology 3, or Physics 2, or Physiology 4, or Zoölogy 1, or Entomology 3 or 4; 5 hours.

Physical Training—

For men—Physical Training 1, 3; 1¼ hours.

For women—Physical Training 7; 1 hour.

SECOND YEAR

Fifteen to eighteen hours' work per week, exclusive of military and physical training, must be chosen each semester. This work *must include all of the prescribed subjects which were not taken in freshman year.* (See p. 69, and the classification under first year.) It must also include the following:

Logic: (Phil. 1a first semester, or Phil. 1b second semester); 3 hours.

Military: Drill (Mil. 2) both semesters; 2 hours.

Rhetoric: English Composition (Rhet. 3); first or second semester, 5 hours.

The remaining hours may be made up by the election of any subjects the requirements for which the student can meet.

THIRD AND FOURTH YEARS

The studies of these are all elective.

LEGAL STUDY AND COLLEGE WORK

By a proper selection of his studies it is possible for a prospective law student to take both his degree in arts and his degree in law in six years. A student who intends to do this should announce his purpose not later than the beginning of his sophomore year, and is advised to enroll in the political science group. He should first do all the work prescribed for candidates for the degree of A.B. (see pp. 66, 67); he should then take studies sufficient to leave him not more than fifteen hours' credit to make in the senior year of his college course. The student during this year should enroll in the College of Law

and take the first year's work there. Of this work ten hours, but no more, may be counted in the College of Literature and Arts as part of the fifteen hours remaining to be taken for the arts degree. These ten hours must be in contracts (Law 1) and real property (Law 3).

Students are not permitted to take this law work for credit toward the arts degree until their senior year; nor are they permitted to take it at all unless they are regularly matriculated candidates for the arts degree.

A fee of five dollars is charged for every law subject taken by students who do not pay the regular law school fees.

SPECIAL COURSE PREPARATORY TO LAW

This course is suggested as a suitable one for students who do not intend to take the degree of A.B. before entering the College of Law. Prospective law students who wish to get their arts degree first, should arrange their work as suggested in the statement about "Legal Study and College Work." If a student can spend but two years in preliminary study he should take the following course:

FIRST YEAR

1. Principles of Economics and English Economic History (Econ. 1, a and b); Mediæval and Modern European History (Hist. 1); Historical Introduction to Contemporary Politics (Hist. 2); Political Institutions (Pub. Law and Admin. 1); Jurisprudence (Pub. Law and Admin. 2); Rhetoric and Themes (Rhet. 1).

2. Five hours in economics from these courses: Money and Banking (Econ. 3); Financial History of the United States (Econ. 4); The Transportation Problem (Econ. 8); Mediæval and Modern European History (Hist. 1); Historical Introduction to Contemporary Politics (Hist. 2); Political Institutions (Pub. Law and Admin. 1); Jurisprudence (Pub. Law and Admin. 2); Rhetoric and Themes (Rhet. 1).

SECOND YEAR

1. Five hours in economics from these courses: Financial History of the United States (Econ. 4); The Tariff Problem (Econ. 7); The Labor Problem (Econ. 12); The Monopoly Prob-

lem (Econ. 18); American History (Hist. 3); or English Constitutional History (Hist. 4); Comparative Administrative Law (Pub. Law and Admin. 5); Oral Discussions (Rhet. 5); Public Speaking (Rhet. 7).

2. Five hours in economics from these courses: Money and Banking (Econ. 3); Financial History of the United States (Econ. 4); Public Finance (Econ. 5); The Transportation Problem (Econ. 8); American History (Hist. 3); or English Constitutional History (Hist. 4); International Law (Pub. Law and Admin. 4); Comparative Administrative Law (Pub. Law and Admin. 5); Oral Discussions (Rhet. 5).

If a student can spend but one year in preliminary work he should select from the above course such subjects as he is prepared for.

COURSES FOR TEACHERS

Students who wish to prepare themselves for teaching are advised to enroll in the group (pp. 67-69) in which occur the special subjects which they wish to teach. It is possible for a student so to combine the studies of the group he enters with electives in pedagogy and psychology as to give him both the necessary knowledge of his specialties and the desirable pedagogical preparation. Students who have teaching in view should in all cases consult the Dean of the College before they make up their study lists.

As a rule, students who arrange their courses of study with reference to teaching particular subjects will have the preference in recommendations to positions calling for teachers of those subjects.

DESCRIPTION OF DEPARTMENTS

ART AND DESIGN

It is the aim of the department of art and design of the University of Illinois to offer courses that will assist students in their University studies, cultivate their esthetic taste, and equip them for future art work.

The department has kept pace with the growth of the

University, has broadened its courses of study and has increased the number of its instructors so that it now offers many courses in drawing, painting, modeling, and design, making it possible for any University student, without additional expense, to secure valuable instruction in art.

All the courses of the department are also open to special students of art. These students enjoy opportunities beyond the reach of students in the usual art school, since all of the departments of the Preparatory School and of the University are open to them without additional expense.

On account of the close connection of the department of art and design with the other departments of the University, students may specialize in the artistic sides of their chosen courses of study, and students wishing to become teachers of drawing or manual training in the public schools may arrange courses to suit their individual needs.

ECONOMICS

The work in economics for undergraduates is so arranged that the student can take a continuous course for from one to three years. The courses are designed to cover as large a field as possible in the literature of the subject, and to present all disputed matters from different points of view.

Minor courses in sociology are provided for in the department.

EDUCATION

It is the aim of the department of education to meet as fully as possible the needs of the prospective secondary school teacher, and those of the city superintendent. The normal schools of our state are well equipped for supplying the wants of the elementary schools, and it is intended that this work shall be supplemented, though not duplicated, here. General courses in the history of education and the principles of pedagogy are offered, but graduates of normal schools who have had similar courses may be

given credit for them, and thus be enabled to devote their whole time to more specific phases of pedagogical work. The department works in conjunction with others of the University in directing the student's energies in such a way that the technical preparation to teach a special group of high school subjects may be combined with the proper pedagogical training to enable the teacher to apply his knowledge most advantageously. Special problems in research and investigation are offered to graduate students.

The department possesses a pedagogical library and museum, which is a unique feature. In it are various materials, all of interest and value to the student of the theory and art of teaching, the whole forming a working pedagogical laboratory.

ENGLISH LANGUAGE AND LITERATURE

The courses are designed to give a continuous view of the twofold subject from the earliest times to our own day. In the junior and senior years double courses are offered, so that students, having had the fundamental work of the sophomore year, may, if desired, confine themselves either to philology or to literature. The aim in the study of literature is to approach the works of an author from the philosophical, emotional, and esthetic, as well as from the merely linguistic and historical points of view.

FRENCH

(See Romanic Languages, p. 80).

GERMAN

Four years of instruction are offered in this subject. By alternating the work in the third and fourth years, provision is made that students whose knowledge of the language at entrance enables them to begin with the third year's work, can pursue the subject throughout their course. The work of the first and second years is intended to give the student the best possible reading knowledge. In the second semester of the second year an opportunity

is offered those whose special interest in the language is as a tool in scientific or technical studies, to read some work of a scientific character, but ability to translate readily and accurately is, in all cases, especially emphasized.

The work of the third and fourth years consists of a critical study of the classic poets and modern writers, and of lectures in German literature.

GREEK

The general purposes of the courses laid out in this subject are first, to teach the Greek language; second, to train students to appreciate its literature; and third, to call attention to those numerous problems in the history, thought, and institutions of the Greeks which illustrate similar phenomena noticeable among ourselves. To accomplish the first object, due attention is paid to the principles of grammar, particularly by making the syntax appear as the evidence of orderly mental procedure, and by continual practice in extemporaneous translation. The second is effected by a study of the surroundings and spirit of an author, and of those literary devices which give character to his productions. The third end is reached through familiar talks upon suitable topics as they are met.

HISTORY

In the courses offered by this department the effort is made, not merely to give students a general knowledge of historical facts, but also to give them some conception of the aims and methods of historical science, and of the materials with which it deals. To this end exercises in historical investigation, more or less elementary, will form a prominent part of the work in all the higher undergraduate courses, as well as in the seminaries.

ITALIAN

(See Romanic Languages, p. 80).

LATIN

The courses at present offered in Latin are nine in number and extend over three years. The first year's instruction is, as far as needed, grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language.

As soon as this preliminary work is done, the attention is directed to two ends. The first is the acquisition of power to read the language with ease and pleasure The thought is constantly emphasized that students are not simply reading Latin—they are reading some of the great literary masterpieces of the world, and should enjoy them as such. The second aim is to introduce the student to the daily life of the Roman; to make his home life vivid and his political life a reality.

The courses offered include a teachers' class, the work of which is based on the needs of those teaching preparatory Latin, and methods of presentation, difficulties, aims, and results are discussed. The members of the class do the work which they, as teachers, should require of their pupils, and at intervals take charge of the recitation.

MATHEMATICS

The object of the instruction in pure mathematics is to promote habits of mental concentration and continuity of thought, to develop the capacity to form and combine abstract conceptions, and to cultivate deductive reasoning. The course is so arranged as to meet the requirements of those who wish to fit themselves for teaching, and of those who study the science for the love of it.

The mathematical courses open to students of the College of Literature and Arts include the entire offering of the University in mathematics.

MILITARY SCIENCE

The work of the department of military science is prescribed for all male students of the Colleges of Literature

and Arts, Engineering, Science, and Agriculture. A full description of the work offered and of the aims and scope of the department will be found farther on in the catalog. (See p. 292.)

PHILOSOPHY

The work in this department includes history of philosophy, metaphysics, ethics, and logic, and is so arranged that the student may take a continuous course for either one or two years.

The courses are planned to meet the needs of those who make philosophy their specialty, and also of those who desire an acquaintance with the subject as a means of general culture. It is the constant aim to emphasize the meaning and interest of philosophy and the relations of its problems to the life of man.

PHYSICAL TRAINING

The work of this department is offered to all students in the University. Consequently the department properly belongs in all the colleges. A full description of its aim and scope is given farther on. (See p. 293.)

PSYCHOLOGY

Besides the opportunity offered in this department for scientific training and original research, there is also given a basis for general culture. The student is taught to observe psychic phenomena in himself, and in his social surroundings, both individual and collective, and is thus given a standpoint from which to approach social and ethical questions intelligently.

Historically, psychology is treated with a view to giving the student a connected idea of the development of the subject. Its experimental development and recent phases are given special attention, with particular comment upon the probable lines of its future development, and the place in human economy which it aims to fill.

PUBLIC LAW AND ADMINISTRATION

The courses in public law and administration are planned with two purposes in view: (1) to give, in conjunction with the instruction in economics and history that information and training which are requisite to intelligent citizenship; and (2) to afford opportunities for advanced work to those who may desire more thorough preparation, either for active political life or preliminary to the study of law.

To meet these ends, the work is so arranged that the subject may be pursued continuously for three years. The elementary courses are given every year, while the advanced courses are offered in alternate years.

The courses, as a whole, are intended to cover the theory of the state, its organization and practical operation.

RHETORIC AND ORATORY

The object of the courses in this department is to acquaint the student with the principles of rhetoric, to teach him correctness and effectiveness in the writing of English, and to give him some practice in the oral expression of his ideas. The subject matter is presented by means of textbooks and lectures, though more emphasis is put upon practice than upon theory.

ROMANIC LANGUAGES AND LITERATURES

This department offers four years of instruction in French and one year each in Spanish and Italian. In the elementary courses the main object is to give the student correct pronunciation, grammatical knowledge, and the ability to read the languages with facility. In the second year attention is especially directed to various phases of nineteenth century literature; effort is made to ground the student thoroughly in the modern idiom, and lectures are given upon the outlines of French literature. The work of the third year is a study of the masterpieces of the seventeenth century. Ability to understand readily spoken French is requisite for admission to this course. The field of the

fourth year's work is literature and society in the eighteenth century. A graduate course is offered in Old French; some of the more important texts are studied, and attention is given to the origins of the language.

SOCIOLOGY

See courses 15 and 17 under economics, p. 218. See also for allied courses, anthropology, p. 187, and psychology, p. 269.

SPANISH

(See Romanic Languages, p. 80).

COLLEGE OF ENGINEERING

FACULTY

Andrew S. Draper, LL.D., President.
N. Clifford Ricker, D.Arch., Dean, Architecture.
Thomas J. Burrill, Ph.D., LL.D., Bacteriology.
Samuel W. Shattuck, C.E., Mathematics.
Ira O. Baker, C.E., Civil Engineering.
Arthur N. Talbot, C.E., Municipal and Sanitary Engineering; Mechanics.
Arthur W. Palmer, Sc.D., Chemistry.
Frank F. Frederick, Art and Design.
Samuel W. Parr, M.S., Applied Chemistry. (On leave.)
Daniel K. Dodge, Ph.D., English.
Lester P. Breckenridge, Ph.B., Mechanical Engineering.
David Kinley, Ph.D., Economics. (On leave.)
Albert P. Carman, Sc.D., Physics.
Jacob K. Shell, M.D., Physical Training.
Lewis A. Rhoades, Ph.D., German.
Thomas A. Clark, B.L., Rhetoric.
George D. Fairfield, A.M., French, Spanish.
William S. Aldrich, M.E., Electrical Engineering.
Newton A. Wells, M.P., Decoration and Rendering.
Edmond G. Fechét, Major U.S.A., (retired), Military.
Edgar J Townsend, Ph.D., Mathematics.
James M. White, B.S., Architecture.
William Esty, B.S., A.M., Electrical Engineering.
Harry S. Grindley, Sc.D., Chemistry.
Herman S Piatt, Ph.D., French.
Fred A. Sager, B.S., Physics.

Cyrus D. McLane, B.S., Architecture, Mechanics.
James D. Phillips, B.S., General Engineering Drawing.
Seth J. Temple, Ph.B., Architecture.
Oscar Quick, A.M., Physics.
William H. Browne, Jr., A.B., Electrical Engineering.
George H. Meyer, A.M., German.
George A. Goodenough, M.E., Mechanical Engineering.
Milo S. Ketchum, C.E., Civil Engineering.
Matthew B. Hammond, Ph.D., Economics.
Charles T. Wilder, B.S., Photography, Blue Prints.
William C. Brenke, M.S., Astronomy.
Neil C. Brooks, Ph.D., German.
Edward L. Milne, M.S., Mathematics.
Martha J. Kyle, A.M., Rhetoric.
Henry L. Coar, A.M., Mathematics.
Edward C. Schmidt, M.E., Mechanical Engineering.
Edd C. Oliver, B.S., Mechanical Engineering.
William A. Adams, A.B., Rhetoric.
Edward J. Lake, B.S., Art and Design.
Lucy H. Carson, A.M., English.
Robert L. Short, A.B., Mathematics.
Alfred L. Kuehn, B.S., Civil Engineering.
Dwight T. Randall, B.S., Mechanical Engineering.
Ernest W. Ponzer, B.S., Mathematics.
James F. Kable, B.S., General Engineering Drawing.
Harry C. Marble, B.S., Electrical Engineering.
Cyril B. Clark, Machine Shop.
Albert R. Curtiss, Wood Shop.
Henry Jones, Forge Shop.
Joseph Wilson, Foundry.
Hugh J. Graham, Rhetoric.
Roy H. Slocum, B.S., Mechanics.
Harry C. Coffeen, M.S., General Engineering Drawing.
Oscar L. Housel, Military.

AIMS AND SCOPE

The purposes of the College of Engineering are thoroughly to prepare men for the professions of engineering and architecture, and also to offer a first-rate training for future managers of great business enterprises. The different courses must therefore comprise both general and technical studies. A primary requisite of success is the ability to present briefly and clearly ideas in terse, correct, and vigorous English. A large fund of general knowledge is now essential to every professional man in order to maintain proper influence among business men. An acquaintance with social customs and life is equally helpful.

The marked tendency now toward specialization requires the graduate to be able successfully to enter any specialty of his profession, thus requiring both breadth and thoroughness in his technical training, with frequent applications to practical problems. Employers have no time to educate assistants in the details of their work.

But a solid foundation in mathematics is still indispensable, and this science is so presented as to be most practically useful. Since a great part of the most valuable knowledge is found only in foreign languages, the graduate should be able to read such technical works in order to keep up with the rapid advances in modern engineering.

The time devoted to technical studies increases during the courses, and occupies more than half the period of University attendance.

METHODS OF INSTRUCTION

Text-books are used for theory, facts and data, since (if enriched by notes and additions) they afterwards form the most valuable portion of a professional library. Lectures are also given, when proper text-books do not exist, to arouse the enthusiasm of the student by presenting in concise form the latest results and practice. Discussions elucidate difficult points, and they are illustrated fully by diagrams, drawings, blue-prints and photographs of executed work. The elec-

tric lantern is also fully employed. Seminar classes present and discuss papers on interesting technical ideas. Applications of the theoretical instruction are profusely made to numerical problems, to designs, and to working drawings.

EQUIPMENT

The special equipment of each department is described in connection with that department. The general equipment of the College consists of a good reference library of indexes, pocket-books, mathematical tables, and other works, together with a very valuable collection of apparatus for economizing time and ensuring accuracy in engineering calculations. These are much used for checking computations and for measuring, reducing, and tabulating observed data, especially for theses, and also for computing tables.

The principal instruments are Thomas's 10-place arithmometer, giving accurate results to 20 places; Thacher's computing scales; Grant's computing machines; other calculating machines, various types of slide rules, adders, etc.; Amsler's polar planimeter and Amsler's integrator; Coradi's linear and polar planimeters for very accurate measurement of irregular plane areas; Coradi's pantagraph for the automatic reduction of drawings and maps.

DESCRIPTION OF DEPARTMENTS

ARCHITECTURE

This department offers two courses of instruction and practice, enabling the graduate to enter respectively the professions of architect and architectural engineer.

The course in architecture prepares for the examination prescribed by the state license law for architects and for the general practice of architecture. Instruction is given by text-books, by fully illustrated lectures, and especially by practice in drawing, rendering, and design, extending through four years and ending with a carefully rendered thesis design.

The specialties of the course are construction, design, and architectural history.

EQUIPMENT

A large collection of casts of ornament, models of structures, working drawings and blue prints, specimens of stones, bricks, tiles, terra cotta, fixtures and fittings, etc., is arranged in the architectural museum. More than 20,000 engravings, photographs, etc., mounted on cards, are classified for quick reference in the drawing rooms. An electric lantern is used in a specially fitted room, together with a collection of 4,000 lantern slides illustrating the history of architecture and that of painting. A very fine architectural library is located in a large room in the department, and is open for use by students during the entire day. The drawing rooms are spacious, well lighted, amply supplied with desks, lockers, and boards.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Architecture

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Lettering, Elements of Drafting, Sketching and Working Drawings (Drawing, Gen. Eng'g 1a, 1b, 1c); Free-hand Drawing or Modeling (Arch. 20 or 21); French 5, or German B or 1 or 4, or English 1; Military 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Descriptive Geometry (Drawing, Gen. Eng'g 2); Architectural Perspective (Arch. 14); French 6, or German 3 or 5 or 6, or English 2; Military 1, 2; Physical Training 1, 3.

Second Year

1. Applied Mechanics (Theo. and App. Mech. 4); Wood Construction (Arch. 2); The Orders of Architecture (Arch. 8); Physics 1; Monthly Problems (Arch. 9); Art and Design 8 or 9; Rhetoric 2; Military 2.

2. Strength of Materials (Theo. and App. Mech. 5); Masonry and Metal Construction (Arch. 3); Requirements and planning of Buildings (Arch. 15); Physics 1; Monthly Problems (Arch. 9); Rhetoric 2; Military 2.

Third Year

1. History of Architecture (Arch. 6); Details of Styles (Arch. 7); Architectural Seminary (Arch. 11); Sanitary Construction (Arch. 4); Architectural Designing (Arch. 17); Chemistry 1, or Economics 1a; Monthly Problems (Arch. 9).

2. History of Architecture (Arch. 6); Details of Styles (Arch. 7); Architectural Seminary (Arch. 11); Graphic Statics and Roofs (Arch. 5); Architectural Composition (Arch. 18); Working Drawings and Residence Design (Arch. 10, 16); Monthly Problems (Arch. 9).

Fourth Year

1. Superintendence, Estimates, and Specifications (Arch. 12); Heating and Ventilation (Arch. 13); Renaissance Design (Arch. 22); Gothic and Romanesque Design (Arch. 23, 24).

2. Design of Ornament (Arch. 25); Mural Decoration (Arch. 28); Surveying (Civil Eng'g 10); Thesis.

ARCHITECTURAL ENGINEERING

This course of study prepares graduates for professional practice as architects, structural designers and computers, as well as superintendents of construction. It is intended for students who prefer the structural and mathematical side of the profession to its artistic side, and who desire to pursue the full engineering course in mathematics and to acquire a thorough knowledge of the iron and steel construction now employed in buildings. It differs from the architectural course principally in the addition of a second year of mathematics and of a year of study in bridge analysis and design, and in devoting considerably less time to architectural drawing and design.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Architectural Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Lettering, Elements of Drafting, Sketching and Working Drawings (Drawing, Gen. Eng'g 1a, 1b, 1c); Shop Practice (Mech. Eng'g 1), or Free-hand Drawing or Modeling (Arch. 20 or 21); French 5, or German B or 1 or 4, or English 1; Military 2; Physical Training 1, 3 or 7.

2. Analytical Geometry (Math. 6); Descriptive Geometry (Drawing, Gen. Eng'g 2); Shop Practice (Mech. Eng'g 1); or Freehand Drawing (Arch. 20 or 21); or Architectural Perspective (Arch. 14); French 5, or German 3 or 5 or 6, or English 2; Military 1, 2; Physical Training 1, 3 or 7.

Second Year

1. Differential Calculus (Math. 7); Wood Construction (Arch. 2); The Orders of Architecture (Arch. 8); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Masonry and Metal Construction (Arch. 3); Requirements and Planning of Buildings (Arch. 15); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and App. Mech. 1, 2a); History of Architecture (Arch. 6); Architectural Seminary (Arch. 11); Sanitary Construction (Arch. 4); Chemistry 1.

2. Resistance of Materials, Hydraulics (Theo. and App. Mech. 2b, 3); History of Architecture (Arch. 6); Architectural Seminary (Arch. 11); Graphic Statics and Roofs (Arch. 5); Chemistry 16.

Fourth Year

1. Superintendence, Estimates, and Specifications (Arch. 12); Heating and Ventilation (Arch. 13); Architectural Engineering (Arch. 19); Bridge Analysis and Details (Civil Eng'g 12, 13).

2. Working Drawings (Arch. 10); Residence Design (Arch. 16); Bridge Details and Design (Civil Eng'g 13, 14); Surveying (Civil Eng'g 10); Thesis.

CIVIL ENGINEERING

The design in this department is to furnish a course of theoretical instruction, accompanied and illustrated by a large amount of practice, which will enable the student to enter intelligently upon the various and important duties of the civil engineer. While the instruction aims to be practical by giving the student information and practice directly applicable in his future professional work, the prime object is the development of the mental faculties. The power to acquire information and the ability to use it are

held to be of far greater value than any amount of so-called practical knowledge.

EQUIPMENT

This department has an extensive equipment of compasses, engineers' transits, solar transits, levels,—ordinary and precise,—plane tables, sextants, chronometers, barometers, etc. For the lecture room, the department is provided with full-sized joints of an actual railroad bridge, sections of columns, eye-bars, etc., and a large collection of lithographs, photographs, and blue-prints of bridges and buildings.

The *cement laboratory* occupies rooms in Engineering Hall, and is provided with slate tables, testing machines, molding machines, sieves, etc., and sample barrels of hydraulic cement, varieties of sand, and other necessary materials.

COURSE OF INSTRUCTION

Required for Degree of B.S. in Civil Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 1, 3); Lettering, Elements of Drafting, Sketching and Working Drawings (Drawing, Gen. Eng'g 1a, 1b, 1c); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry (Drawing, Gen. Eng'g 2); Shop Practice (Mech. Eng'g 1); French 5, or German 3 or 5 or 6, or English 2; Military 1, 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Surveying (Civil Eng'g 21); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Topographical Surveying (Civil Eng'g 22); Railroad Curves (Civil Eng'g 23); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics, and Resistance of Materials (Theo. and App. Mech. 1, 2a); Railroad Engineering (Civil Eng'g 4); Chemistry 1; Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and App. Mech. 2b, 3); Graphical Statics and Roofs (Arch. 5); Road Engineering (Mun. and San. Eng'g 1); Descriptive Astronomy (Astron. 4); Steam Boilers (Mech. Eng'g 17).

Fourth Year

1. Bridge Analysis, and Bridge Details (Civil Eng'g 12, 13); Masonry Construction (Civil Eng'g 5); Water Supply Engineering (Mun. and San. Eng'g 2); Practical Astronomy (Astron. 6); Thesis.

2. Bridge Details, and Bridge Design (Civil Eng'g 13, 14); Sewerage (Mun. and San. Eng'g 3); Railroad Structures (Civil Eng'g 17); Tunneling (Civil Eng'g 15), or Geodesy (Civil Eng'g 6); Economics 2 or 8; Engineering Contracts and Specifications (Civil Eng'g 16); Thesis.

ELECTRICAL ENGINEERING

INSTRUCTION

This is a course in theoretical and applied electricity. The first two years of work are substantially the same as in the other engineering courses. The last two years of work include theoretical and applied mechanics, steam engineering and electrical engineering. In each of these branches the student is thoroughly familiarized with principles and their applications in designing and in experimental and constructive work.

EQUIPMENT

The lecture rooms, drafting rooms, and laboratories are furnished in a suitable manner and equipped with the latest and best apparatus. In the dynamo laboratory are various sizes and types of direct and alternating current dynamos, motors, and rotary converters; transformers for all classes of polyphase testing; direct and alternating current switch-boards, of eight marble panels each, with every appliance for expeditious handling of electric currents. Stock, tools, and instruments of best quality are provided for each line of work. The standardizing and photometry rooms, the research and thesis rooms are equipped as may be required for special and advanced work. The workshop

of this department is fitted for the several branches of electrical construction. Power is supplied from the storage battery installation of this department and from the University electric light and power plant, adjoining, in the same building, in which the direct and alternating current dynamos, driven by steam engines, also afford many facilities for experimental work.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Electrical Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Lettering, Elements of Drafting, Sketching and Working Drawings (Drawing, Gen. Eng'g 1a, 1b, 1c); French 5, or German B or 1 or 4, or English 1; Shop Practice (Mech. Eng'g 1); Military 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry (Drawing, Gen. Eng'g 2a); French 5, or German 3 or 5 or 6, or English 2; Shop Practice (Mech. Eng'g 1); Military 1, 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

2. Integral Calculus (Math. 9); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and Appl'd Mech. 1, 2a); Chemistry 1; Electrical and Magnetic Measurements (Physics 4); Electricity and Magnetism (Elect. Eng'g 3); Dynamo-Electric Machinery (Elect. Eng'g 2); Steam Engines (Mech. Eng'g 16).

Beginning with the first semester, 1899-00, the following groups of elective studies were opened to all students of Electrical Engineering who have satisfactorily completed the prescribed work of the preceding two years and a half, and for which additional work the same degree will be given.

GROUP I.—ELECTRICAL ENGINEERING

Regular Electrical Course

Third Year

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Steam Boilers (Mech. Eng'g 17); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical and Magnetic Measurements (Physics 4); Mechanical Engineering Laboratory (Mech. Eng'g 13); Telegraphy and Telephony (Elect. Eng'g 4); Electrical Engineering Laboratory (Elect. Eng'g 22); Electrical Design (Elect. Eng'g 31).

Fourth Year

1. Alternating Current Machinery (Elect. Eng'g 6); Alternating Currents and Alternating Current Transformer (Elect. Eng'g 5); Electrical Distribution (Elect. Eng'g 7); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electric Power Transmission (Elect. Eng'g 8); Electric Lighting (Elect. Eng'g 9); Electric Traction (Elect. Eng'g 10); Electrical Engineering Laboratory (Elect. Eng'g 23); Photometry (Elect. Eng'g 26); Electives (three semester hours); Thesis.

2. Electric Light and Power Plants (Elect. Eng'g 11); Electrical Design (Elect. Eng'g 32, 33); Seminary (Elect. Eng'g 13); Estimates, Specifications, and Superintendence (Mech. Eng'g 10); Economics 2; Advanced Electrical Measurements (Physics 9); Electro-Metallurgy (Elect. Eng'g 12); Electrical Engineering Laboratory (Elect. Eng'g 23, 24); Thesis.

GROUP II.—ELECTRICAL ENGINEERING

Electro-Physical Course

Third Year

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Steam Boilers (Mech. Eng'g 17); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical and Magnetic Measurements (Physics 4); Telegraphy and Telephony (Elect. Eng'g 4); Electrical Engineering Laboratory (Elect. Eng'g 22); Differential Equations (Math. 16).

Fourth Year

1. Alternating Current Machinery (Elect. Eng'g 6); Alternating Currents and Alternating Current Transformer (Elect. Eng'g 5); Electrical Distribution (Elect. Eng'g 7); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electrical

Engineering Laboratory (Elect. Eng'g 23); Theory of Equations (Math. 10); Least Squares (Math. 14); Introduction to Theoretical Physics (Physics 6); Thesis.

2. Electric Light and Power Plants (Elect. Eng'g 11); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electrical Engineering Laboratory (Elect. Eng'g 23); Calculus of Variations (Math. 20); Introduction to Theoretical Physics (Physics 6); Investigations of Special Problems (Physics 7); Thesis.

GROUP III.—ELECTRICAL ENGINEERING

Electro-Chemical Course

Third Year

2. Resistance of Materials, Hydraulics (Theo. and Appl'd Mech. 2b, 3); Steam Boilers (Mech. Eng'g 17); Dynamo-Electric Machinery (Elect. Eng'g 2); Electrical and Magnetic Measurements (Physics 4); Qualitative Analysis (Chem. 3a).

Fourth Year

1. Alternating Current Machinery (Elect. Eng'g 6); Alternating Currents and Alternating Current Transformer (Elect. Eng'g 5); Electrical Distribution (Elect. Eng'g 7); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Quantitative Analysis (Chem. 5a); Introduction to Theoretical Physics (Physics 6); Thesis.

2. Electric Light and Power Plants (Elect. Eng'g 11); Electrical Design (Elect. Eng'g 32); Seminary (Elect. Eng'g 13); Electrical Engineering Laboratory (Elect. Eng'g 21); Electro-Metallurgy (Elect. Eng'g 12); Electro-Chemical Analysis (Chem. 15c, 15d); Investigation of Special Problems (Physics 7); Thesis.

MECHANICAL ENGINEERING.

It is the object of this course to give the student a thorough training in the theoretical principles underlying the science of machines and mechanics, and at the same time to make him practically familiar with some of the numerous applications of these principles.

EQUIPMENT

The equipment of this department is arranged for work of three kinds—class and drawing room work, laboratory work, and shop practice.

The *drawing rooms* are equipped with modern desks, boards, filing cabinets, card indexes, reference books, catalogs, odontographs, gear charts, tables, etc. In the cabinet rooms are kinematic models and sectioned steam specialties, many of which were donated by the manufacturers.

The *steam engineering laboratory* is in the *Mechanical and Electrical Engineering Laboratory.* It contains nine steam engines available for testing purposes. The facilities for boiler testing are excellent. There are several types of boilers equipped with different kinds of automatic stokers. There are also various kinds of steam and power pumps and numerous steam specialties arranged for tests.

The laboratory contains three gas engines, an air compressor, a hot air engine, a large volume fan, and a complete outfit of instruments used by the mechanical engineer for testing purposes.

The pumping station and power plants of the two cities furnish additional apparatus for experimental work.

The shops of the College are in charge of this department; they consist of a wood shop, foundry, forge shop, and machine shop.

The shops are large, well lighted and attractive; they are all equipped with modern tools and furnish abundant facilities for giving the student the necessary practice in this line of work.

Two hundred and fifty students can be accommodated with the present facilities.

COURSES OF INSTRUCTION

Required for the Degree of B.S. in Mechanical Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Lettering, Elements of Drafting, Sketching and Working Drawings (Drawing, Gen. Eng'g 1a, 1b, 1c); French 5, or German B or 1 or 4, or English 1; Shop Practice (Mech. Eng'g 1); Military 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry

(Drawing, Gen. Eng'g 2a); French 5, or German 3 or 5 or 6, or English 2; Shop Practice (Mech. Eng'g 1); Military 1, 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

2. Integral Calculus (Math. 9); Physics 1, 3; Rhetoric 2; Elements of Machine Design (Mech. Eng'g 4); Shop Practice (Mech. Eng'g 2); Military 2.

Third Year

1. Analytical Mechanics and Resistance of Materials (Theo. and Appl'd Mech. 1, 2a); Chemistry 1; Power Measurements (Mech. Eng'g 3); Mechanism (Mech. Eng'g 5); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and Appl'd Mech. 2b, 3); Chemistry 16; Power Measurements (Mech. Eng'g 3); Steam Boilers (Mech. Eng'g 17); Electrical Engineering (Elect. Eng'g 1); Surveying (Civil Eng'g 10).

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Heat Engines (Mech. Eng'g 6); High-Speed Steam Engines and Valve Gears (Mech. Eng'g 14); Advanced Designing (Mech. Eng'g 9); Advanced Mechanical Laboratory (Mech. Eng'g 12); Seminary (Mech. Eng'g 19); Thesis.

2. Mechanics of Machinery (Mech. Eng'g 8); Graphical Statics of Mechanism (Mech. Eng'g 18); Estimates (Mech. Eng'g 10); Advanced Designing (Mech. Eng'g 9); Advanced Mechanical Laboratory (Mech. Eng'g 12); Economics 2 or 8; Seminary (Mech. Eng'g 19); Thesis.

RAILWAY ENGINEERING

The railroad interests of the State of Illinois, as well as of the United States, have become so important as to demand a separate recognition in the courses of those educational institutions which offer instruction in engineering.

Wishing to meet the demand for specialization along this important line the University has established an undergraduate course leading to the degree of B.S. in *Railway Engineering,* and also provides for graduate instruction and investigation in this department leading to a second degree.

Three leading railroads of the state are coöperating in the work of this department. The department of civil engineering already furnishes special instruction relating to construction and maintenance of way. This new course will be devoted to the problems of motive power and machinery, including construction, design, and operation of locomotives and rolling stock. It will include also tests of fuel, water supply, materials, and supplies.

EQUIPMENT

The shops and laboratories of the departments of mechanical and electrical engineering, applied mechanics, and chemistry furnish abundant laboratory facilities along these special lines.

The department is rapidly acquiring a considerable amount of class room and laboratory material, such as photographs, blue prints, and samples of manufactured specialties of value to the students of this work.

This department now owns, with the P. & E. Div. of the C., C., C. & St. Louis Ry., a fully equipped dynamometer car, No. 609. It also owns, with the Illinois Central R. R., a fully equipped railway test car, No. 17.

These cars have been designed and built for locomotive and railway tests, and they are used for no other purpose. They have been built and equipped with special reference to the following service:

1. Locomotive road tests for economy.

2. Locomotive capacity tests and measurements of train resistance.

3. Automatic track inspection for line and grade.

4. Air brake service inspection.

5. Stationary plant tests at railway shops and water stations.

The department owns a continuous steam engine indicator, apparatus for determining the effect of scale deposits on the transfer of heat through the tubes, as well as con-

siderable apparatus designed and built for various tests of locomotives in actual service.

The new railway shops of the P. & E. Div. of the C., C., C. & St. L. Ry. at Urbana furnish exceptional opportunities for inspection of construction and repair work, and the assured aid that this department will receive from the management of these shops can but be of considerable value to the student.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Railway Engineering

First, Second, and Third Years

Same as the course of instruction in mechanical engineering.

Fourth Year

1. Thermodynamics (Mech. Eng'g 7); Locomotive Engines (Ry. Eng'g 1); Locomotive Engine Design (Ry. Eng'g 2); Shop Systems (Ry. Eng'g 3); Locomotive Road Tests (Ry. Eng'g 4); Seminary (Mech. Eng'g 19); Thesis.

2. Mechanics of Machinery (Mech. Eng'g 8); Compressed Air in Railway Service (Ry. Eng'g 5); Railway Estimates (Ry. Eng'g 6); Advanced Designing (Ry. Eng'g 7); Dynamometer Car Tests (Ry. Eng'g 8); Economics 2 or 8; Seminary (Mech. Eng'g 19); Thesis.

MUNICIPAL AND SANITARY ENGINEERING

This course is designed for students desiring to make a specialty of city engineering work. It prepares for the varied duties of engineer of the department of public works of cities and includes instruction in modern methods of sanitation of cities.

INSTRUCTION

Instruction is given by lectures, by text-books and seminary work, and by field, laboratory, and drafting work. The methods of training are intended to develop power to take up and solve new problems connected with municipal public works, as well as to design and to superintend the ordinary constructions. Surveying, structural materials, and structural design are taught as in the civil engineering

course. Chemistry, botany, and bacteriology, so far as necessary to a comprehension of the questions involved in water supply and sewage disposal, are given.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Municipal and Sanitary Engineering

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); Lettering, Elements of Drafting, Sketching and Working Drawings (Drawing, Gen. Eng'g 1a, 1b, 1c); Shop Practice (Mech. Eng'g 1); French 5, or German B or 1 or 4, or English 1; Military 2; Physical Training 1, 3.

2. Analytical Geometry (Math. 6); Descriptive Geometry (Drawing, Gen. Eng'g 2a); Shop Practice (Mech. Eng'g 1); French 5, or German B or 3 or 5 or 6, or English 2; Military 1, 2; Physical Training 1, 3.

Second Year

1. Differential Calculus (Math. 7); Surveying (Civil Eng'g 21); Physics 1, 3; Rhetoric 2; Military 2.

2. Integral Calculus (Math. 9); Topographical Surveying (Civil Eng'g 22); Railroad Curves (Civil Eng'g 23); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Analytical Mechanics, and Resistance of Materials (Theo. and Appl'd Mechanics 1, 2a); Bacteriology (Mun. and San. Eng'g 5a); Chemistry 1; Railroad Engineering (Civil Eng'g 4a); Steam Engines (Mech. Eng'g 16).

2. Resistance of Materials, and Hydraulics (Theo. and Appl'd Mech. 2b, 3); Road Engineering (Mun. and San. Eng'g 1); Graphic Statics and Roofs (Arch. 5); Chemistry 3a; Steam Boilers (Mech. Eng'g 17); Electrical Engineering 1.

Fourth Year

1. Bridges (Civil Eng'g 12, 13); Chemistry 20; Masonry Construction (Civil Eng'g 5); Water Supply Engineering (Mun. and San. Eng'g 2); Thesis.

2. Bridge Design (Civil Eng'g 13, 14a); Engineering Contracts and Specifications (Civil Eng'g 16); Mechanical Engineering Laboratory (Mech. Eng'g 13); Sewerage (Mun. and San. Eng'g 3); Water Purification, Sewage Disposal, and General Sanitation (Mun. and San. Eng'g 6); Thesis.

PHYSICS

The courses in this department are designed to furnish the student who intends to follow the profession of engineering, science teaching, or research in physical science, with a knowledge of the phenomena and laws of physics.

EQUIPMENT

The rooms devoted to physics are in Engineering Hall. They include a large lecture room and cabinet, a large general laboratory and cabinet, several small laboratories, a constant-temperature room, a battery room, a workshop, and several private studies, laboratories, and offices.

The *lecture room* is in the form of an amphitheater, and is furnished with opera chairs provided with tablet arms. Piers at the lecture desk and in the center of the room make demonstrations with the more delicate apparatus possible. A permanent screen and rolling blinds operated by a motor facilitate illustration by lantern. The cabinet rooms adjoining the lecture room are supplied with apparatus suitable for illustration and demonstration, and are provided with conveniences for preparing apparatus for lectures.

The general laboratory is a room sixty feet square and is well lighted and ventilated. It is supplied with tables, shelves, and sinks, arranged for general experimental work. The cabinet room adjoining this laboratory contains the apparatus designed for elementary experimental work.

The *small laboratories,* six in number, are on the first floor, and are abundantly provided with masonry piers, wall shelves, sinks, dark curtains, etc. They contain a line of high-grade apparatus for advanced experimental work and research. The electrical measurement apparatus is especially complete, and there is an excellent line of apparatus from the best makers for the fundamental measurements in mechanics, heat, and light.

The *constant-temperature* room is on the first floor. It is isolated from the surrounding space by double masonry

walls and double doors. It is arranged for such experiments as require a low, uniform temperature.

The department has a mechanician and well equipped workshop. This gives facilities for making apparatus from original designs for the general work of the department, and also for special investigations and research.

In addition to the preceding, there are a number of private studies and laboratories for the use of advanced students and instructors.

THEORETICAL AND APPLIED MECHANICS

The courses in theoretical and applied mechanics are designed to meet the needs of students of the College of Engineering. The laboratory of applied mechanics was burned in June, 1900, and the entire equipment of the materials laboratory and the hydraulic laboratory was destroyed. It is expected that a new building and new equipment will be ready by September, 1901.

COLLEGE OF SCIENCE

FACULTY

ANREW S. DRAPER, LL.D., PRESIDENT.
STEPHEN A. FORBES, PH.D., DEAN, Zoölogy.
THOMAS J. BURRILL, PH.D., LL.D., Botany and Horticulture.
SAMUEL W. SHATTUCK, C.E., Mathematics.
CHARLES W. ROLFE, M.S., Geology.
ARTHUR W. PALMER, SC.D., Chemistry.
FRANK F. FREDERICK, Art and Design.
SAMUEL W. PARR, M.S., Applied Chemistry.
DANIEL K. DODGE, PH.D., English.
DAVID KINLEY, PH.D., Economics.
ALBERT P. CARMAN, SC.D., Physics.
EVARTS B. GREENE, PH.D., History.
GEORGE T. KEMP, M.D., PH.D., Human Physiology.
JACOB K. SHELL, M.D., Physical Training.
LEWIS A. RHOADES, PH.D., German.
THOMAS A. CLARK, B.L., Rhetoric.
ARTHUR H. DANIELS, PH.D., Philosophy.
GEORGE D. FAIRFIELD, A. M., Romanic Languages.
CHARLES W. TOOKE, A.M., LL.B., Public Law and Administration.
EDWIN G. DEXTER, B.PD., PH.D., Education.
EDMOND G. FECHÉT, Major U. S. A. (retired), Military.
ISABEL BEVIER, PH.M., Household Science.
EDGAR J TOWNSEND, PH.D., Mathematics.
VIOLET D. JAYNE, A.M., English.
HARRY S. GRINDLEY, SC.D., Chemistry.

HERMAN S PIATT, PH. D., French.
FRED A. SAGER, B.S., Physics.
FRANK SMITH, A.M., Zoölogy.
OSCAR QUICK, A.M., Physics.
GEORGE H. MEYER, A. M., German.
STRATTON D BROOKS, M.PD., Education.
MATTHEW B. HAMMOND, PH.D., Economics and Sociology.
JENNETTE E. CARPENTER, O.M., Physical Training for Women.
GEORGE A. HUFF, JR., Coach of Athletic Teams.
CHARLES T. WILDER, B.S., Photography.
WILLIAM C. BRENKE, M.S., Mathematics.
HENRY L. SCHOOLCRAFT, PH.D., History.
NEIL C. BROOKS, PH.D., German.
MARTHA J. KYLE, A.M., Rhetoric.
HENRY L. COAR, A.M., Mathematics.
WILLIAM A. ADAMS, A.B., Rhetoric and Public Speaking.
EDWARD J. LAKE, B.S., Art and Design.
LUCY H. CARSON, A.M., English.
GEORGE M. HOLFERTY, M.S., Botany.
ROBERT L. SHORT, A.B., Mathematics.
JOHN H. MCCLELLAN, A.M., Zoölogy.
JOHN L. SAMMIS, M.S., Chemistry.
FRED C. KOCH, M.S., Chemistry.
ERNEST W. PONZER, B.S., Mathematics.
JUSTUS W. FOLSOM, S.D., Entomology.
NATHAN A. WESTON, M.L., Economics.
IRA H. DERBY, B.S., Chemistry.
DAISY L. BLAISDELL, A.M., German.
FLORENCE N. JONES, A.M., French.
ROBERT W. STARK, B.S., Chemistry.
CORNELIA E. SIMON, Household Science.
HARRY B. FOX, B.S., Geology.
OTAKAR L. PROHASKA, B.S., Chemistry.
WILLIAM M. DEHN, A.M., Chemistry.
ALBERT L. MARSH, Chemistry.

Hugh J. Graham, A.B., Rhetoric.
Arthur R. Johnston, B.S., Chemistry.
Oscar L. Housel, Military.

AIMS AND SCOPE

The College of Science is based upon the idea that the methods of science and the branches of study to which those methods are applicable present a subject-matter and a discipline ample for the purposes of a liberal education, and that an education so derived differs materially in character and value from one whose sources are mainly literary. This College is distinguished in general from the technical colleges of the University by the fact that its choice of subjects is not limited by practical ends, and from the College of Literature and Arts by the predominance, in its courses and requirements, of the strictly scientific subjects. It is articulated with the latter, however, by the liberal elections from the literary courses permitted to students who have satisfied its demands as to scientific work, and by the special courses in science open to election by students from the companion College.

It affords an opportunity for the study of the natural, physical, mathematical, and mental sciences, and of economic, sociological, and philosophical subjects, either as specialties or as the substance of a general education. The candidate for graduation may take a year each in any four of the principal subjects of this College, with a considerable amount of language, literature, and general study; he may concentrate his major work on any one of the several subjects in which major courses are offered; or he may adopt any program of concentration of his major work intermediate between these extremes. The subjects presented in this College are accordingly arranged in the following six groups; chemical and physical, mathematical, general science, pedagogical, preliminary medical, and household science, each characterized by the predominant importance and

development of the subjects indicated by its name. The studies of each group are again divided into required and elective subjects. All the required subjects are necessary to graduation in the group of studies specified. Those of the elective lists are open to election, restricted only by certain general requirements, varying in the different groups, regarding the amount and distribution of the work to be done on them.

It is the purpose of this system of classification and requirement to permit large liberty of choice with respect both to main lines of study and to associated or secondary subjects, and at the same time so to guide the student's elections that his course of study shall always contain a central core or axis of closely articulated major work. Preference is further given by this means to those minor subjects most important because of their relations to the major work elected.

The only degree given in this College is that of bachelor of science. University credit to the amount of one hundred and thirty hours (p. 180) is required for graduation. Ten of these may be earned by investigation work, the results of which are to be presented in a final thesis. Credit will be given for fractions of courses of instruction in exceptional cases only, by vote of the college faculty.

The attention of women students is especially called to the announcement of the household science group, page 126, and also to the description of a suggested special science course for women on page 120.

EQUIPMENT

Laboratories.—The College of Science occupies three of the University buildings—the Chemical Laboratory, Natural History Hall, and the Astronomical Observatory—together with several rooms in University Hall assigned to the mathematical department and to some of the departments of the philosophical group. The physics laboratories and lecture room are in Engineering Hall, and the natural his-

tory museum is in University Hall. The laboratories of the household science department are in the Agricultural Building.

The laboratory and library facilities of this College have been acquired with primary reference to the needs of the undergraduate student, and are scarcely surpassed, for their purpose, in grade and completeness, among American universities. The graduate student likewise finds here an ample equipment, material, and opportunity for independent investigation in several departments of study, notably in those covered by the operations of the State Laboratory of Natural History and of the State Entomologist's office.

THE CHEMICAL AND PHYSICAL GROUP

AIMS

The purposes of the chemical and physical group are:

1. To provide a training in the principles of chemistry and physics as part of a liberal education.

2. To furnish such instruction and training in these sciences as is requisite for the succesful prosecution of studies in other sciences, i. e., biology, physiology, geology, agriculture, sanitary engineering, electrical engineering, domestic economy, etc.

3. To afford opportunity for the acquisition of the technical knowledge and skill needed in the applications of chemistry in the industrial world by the analytical chemist and expert, the manager of chemical and metallurgical industries, or the scientific and manufacturing pharmacist.

4. To meet the demands of those who are preparing themselves as teachers of chemistry and physics.

5. To lay the foundation of a career as investigator in chemistry or in physics.

Suggestions as to choice of courses.—The courses in chemistry and in physics, which are outlined on pages 110 and 113, include lists of electives which afford opportunities

for extensive range in selection of options, so that it is possible to arrange numerous combination courses directed to various specific ends.

One intending to teach chemistry and physics should take all the prescribed work of the chemical course, selecting numbers 7 and 12 among his chemical electives and taking also physics 5 or 6 and mathematics 4; he can then fill out the rest of his restricted and open electives by choice of studies from the natural science group or make choice of subjects in languages and literature, etc.; or, if he wish to devote himself more fully to physics, he should take the chemical-physical course as outlined on page 110.

A course preparatory to the study of medicine may be arranged by taking the prescribed work of the chemical course, amounting to 83½ hours' credit, selecting among the chemical electives toxicology, urinalysis, and sanitary analysis, and for the other electives taking art and design, bacteriology (botany 5), biology 1, physiology 4, psychology 2, zoölogy 2 and 3. The completion of this course will enable the student to obtain credits amounting to one year's work upon the four years' medical course at the College of Medicine of the University of Illinois, and will prepare him for specialization in medical and physiological chemistry.

Students of chemistry who intend to become commercial analysts should include among their chemical electives 5c, 8, 10, 6b, 15a, 15b, 15c, 18a, 24, 25, take bacteriology (botany 5 or 6), mineralogy 1a, and fill out the rest of their electives by the selection of subjects from the natural science group.

EQUIPMENT FOR CHEMISTRY

Laboratories.—The Chemical Laboratory is 75 by 120 feet and three stories high, including basement. The basement contains the water survey laboratory and rooms for storage and dispensing, and for work in assaying and metallurgical chemistry. The first floor has a lecture room and laboratory for general chemistry and qualitative analysis,

each of which accommodates 150 students; a large private laboratory, and a store room. The second floor has a laboratory for quantitative analysis and organic chemistry, a balance and reading room, and a large private laboratory.

Several recitation rooms used by this department and rooms for special work in physical chemistry are in Natural History Hall.

Apparatus.—The laboratories are furnished with all of the supplies required for the various lines of work in pure and applied chemistry.

The apparatus for general use, all of which is new and of the most approved pattern and construction, includes thirty-five high grade analytical Sartorius and Troemner balances, an abundant supply of platinum ware, including combustion tubes and a large retort for making pure hydrofluoric acid, Kahlbaum's mercurial air pumps, Schmidt and Haensch saccharimeters of three different styles, complete sets of Hofmann's and Lepsius's apparatus for lecture demonstrations, Orsat's and Hempel's apparatus for gas analysis, microscopes, spectroscopes, apparatus for electrolytic analysis, etc.; for work in physical chemistry there are thermostats, Abbe's and Pulfrich's refractometers, Krüss's universal spectral apparatus with all attachments, two calorimetric bombs, one of which is lined with platinum, Beckmann's apparatus, Dumas', Hofmann's, and Meyer's vapor density apparatus, apparatus for determination of electrical conductivities. The laboratory is provided with its own dynamo, a large storage battery, and an excellent projection lantern.

A very important feature of the equipment consists of the chemical library, which, in addition to the modern, standard chemical texts, dictionaries, and encyclopedias, includes complete sets of nearly all the more important chemical journals, especially the German and English. The current numbers of many others are regularly received.

EQUIPMENT FOR PHYSICS

For the equipment in physics see p. 99.

CHEMICAL COURSES

CLASSIFICATION OF SUBJECTS

Prescribed

1. *Chemical.*—General Elementary Chemistry (Chem. 1); 5 hours.*
   Descriptive Inorganic Chemistry (Chem. 2); 3 hours.
   Inorganic Preparations (Chem. 2a); 3 hours.
   Physical Chemistry (Chem. 7); 3 hours.
   Organic Chemistry (Chem. 9, 9a, 14); 8 hours.
   Qualitative Analysis (Chem. 3a); 5 hours.
   Quantitative Analysis (Chem. 5a); 5 hours.
   Seminary (Chem. 19); 3 hours.
2. *General.*—Advanced Algebra and Trigonometry (Math. 1, 3, or 2, 4); 5 hours.
   German B or 1, 3, 4, 5 or 6; 20 hours.
   Military Science, 1, 2; 5 hours.
   Physical Training—
   Men, 1, 3; 2½ hours.
   Women, 7, 9; 3 hours.
   Physics 1, 3; 10 hours.
   Rhetoric 2; 6 hours.

Elective

List A

First Semester—

Assaying (Chem. 15b); 2 hours.
Metallurgy (Chem. 6b); 3 hours.
Metallurgical Chemistry (Chem. 15a); 2 hours.
Sanitary Analysis (Chem. 10); 3 to 5 hours.

Second Semester—

Chemical Technology (Chem. 6a); 3 hours.
Electrolytic Analysis (Chem. 15c); 3 hours.
Food Analysis (Chem. 5c); 2 to 10 hours.
Household Chemistry (Chem. 23); 5 hours.
Industrial Chemistry (Chem. 17); 3 hours.
Iron and Steel Analysis (Chem. 8); 3 hours.
Mineral Analysis (Chem. 5b); 3 to 10 hours.
Theoretical Chemistry (Chem. 12); 3 hours.

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*For explanation of "hours" see p. 180.

Either Semester—

Agricultural Chemistry (Chem. 13); 5 to 10 hours.
Electro-Chemistry (Chem. 7d, e); 2 to 7 hours.
Proximate Organic Analysis (Chem. 21); 3 to 10 hours.
Physical Chemistry (Chem. 7); 3 to 10 hours.
Special Advanced Courses (Chem. 18a, b, c); 1 to 10 hours.
Spectroscopic Analysis (Chem. 7f); 2 to 4 hours.
Thesis Investigation (Chem. 11); 5 to 15 hours.
Toxicology (Chem. 24); 2 to 5 hours.
Urinalysis (Chem. 25); 2 hours.

List B

Botany 1, 2, 3, 5, 6, 8, 11; 2 to 29 hours.
Electrical Engineering 1, 12; 2 to 5 hours.
General Engineering Drawing 1a, b, c; 5 hours.
Geology 1, 2, 3; 5 or 10 hours.
Mathematics 6, 7, 9; 5 to 15 hours.
Mechanical Engineering 7, 16, 17; 5 hours.
Mineralogy, 1, 2; 5 or 10 hours.
Paleontology 1; 5 or 10 hours.
Physics 5; 3 to 10 hours.
Physiography 1; 5 hours.
Physiology 1, 2, 4, 5, 6; 1 to 20 hours.
Theoretical and Applied Mechanics 1, 2 or 4, 5; 7 or 8 hours.
Zoölogy 1, 2, 3, 10; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

In order to graduate in chemistry, the candidate must complete all the required courses (83½ hours), and must have at least 13 hours additional for subjects chosen from the list A of chemistry electives. For the remaining 33½ hours he must choose 15 hours of electives from list B and for the other 18½ hours must choose subjects from any University offerings, subject to the approval of the head of the department of chemistry. He must make in all 130 hours' credit, and present an acceptable thesis.

Special exceptions as to the required number of chemical options may be made for those who desire to prepare themselves as teachers of chemistry rather than as technical chemists, and for those who in preparing for the study of medicine wish to take major work in chemistry.

COURSE OF INSTRUCTION

For the Degree of B.S. in Chemistry

First Year

1. General Elementary Chemistry (Chem. 1); German B or 1 or 4; Mathematics 1, 3 or 2, 4; Military 2; Physical Training 1, 3 or 7, 9.

2. Descriptive Inorganic Chemistry (Chem. 2); German B or 3 or 6; Inorganic Preparations (Chem. 2a); Qualitative Analysis (Chem. 3a); Military 1, 2; Physical Training 1, 3 or 7.

Second Year

1. German 4; Physics 1, 3; Quantitative Analysis (Chem. 5a); Rhetoric 2; Military 2.

2. German 5 or 6; Organic Chemistry (Chem. 9 and 9a); Physics 1, 3; Rhetoric 2; Military 2.

Third Year

1. Organic Chemistry, special chapters (Chem. 14); Rhetoric 2; Electives.

2. Physical Chemistry (Chem. 7); Rhetoric 2; Seminary (Chem. 19); Electives.

Fourth Year

1. Seminary (Chem. 19); Electives.
2. Seminary (Chem. 19); Electives.

APPLIED CHEMISTRY AND ENGINEERING

To meet the ends of those who wish to fit themselves for such work as devolves upon the managers of establishments in which the operations depend upon chemical processes, a four years' course in chemistry with related engineering subjects has been arranged.

REQUIREMENTS FOR GRADUATION

The requirements for graduation, as indicated on page 109, are modified as follows: The electives to be chosen from the list must include chemistry 6a and 6b, 8, and 15a; general engineering drawing 1, two subjects listed under mathematics, four under mechanical engineering, and two under mechanics, theoretical and applied.

A thesis is required, and completion of the work leads to the degree of bachelor of science in chemistry and engineering.

COURSE OF INSTRUCTION BY YEARS AND SEMESTERS

The prescribed and chemical electives, together with the engineering subjects necessary to meet the above conditions, are indicated below.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Chemistry and Engineering

First Year

1. Drawing (Gen. Eng'g 1a, 1b, 1c); General Chemistry (Chem. 1); German B or 1 or 4; Mathematics 1, 3 or 2, 4; Military 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); Descriptive Inorganic Chemistry (Chem. 2); Qualitative Analysis (Chem. 3a); German B or 3 or 5 or 6; Military 1, 2; Physical Training 1, 3 or 7.

Second Year

1. Differential Calculus (Math. 7); German 4; Physics 1, 3; Quantitative Analysis (Chem. 5a); Rhetoric 2; Shop Practice (Mech. Eng'g 1); Military 2.

2. Chemical Technology (Chem. 6); Integral Calculus (Math. 9); German 5 or 6; Iron and Steel Analysis (Chem. 8); Physics 1, 3; Rhetoric 2; Shop Practice (Mech. Eng'g 1); Military 2.

Third Year

1. Analytical Mechanics (Theo. and Appl'd Mech. 1 or 4); Metallurgical Chemistry and Assaying (Chem. 15a); Metallurgy (Chem. 6b); Shop Practice (Mech. Eng'g 2); Steam Engines (Mech. Eng'g 16).

2. Electrical Engineering 1; Electro Chemistry (Chem. 15b); Organic Chemistry (Chem. 9 and 9a); Resistance of Materials (Theo. and Appl'd Mech. 2 or 5); Seminary (Chem. 19); Steam Boilers (Mech. Eng'g 17); Shop Practice (Mech. Eng'g 2).

Fourth Year

1. Organic Chemistry (Chem. 14); Seminary (Chem. 19); Chemistry, special advanced subjects (selected from Chemistry 12, 15a, 17, 18, 19); Steam Engines (Mech. Eng'g 16); Thermodynamics (Mech. Eng'g 7); Thesis and Investigation (Chem. 11).

2. Chemistry, special subjects (selected from Chem. 15b, 18a, 18d, 19; Physical Chemistry (Chem. 7); Steam Boilers (Mech. Eng'g 17): Thesis and Investigation (Chem. 11).

PHYSICAL COURSES

CLASSIFICATION OF SUBJECTS

Prescribed

Chemistry 1, 2; 8 hours (p. 112).
French 1, 2, 5; or German B or 1, 3, 5 or 6; 20 hours.
Mathematics 2 (Advanced Algebra); 3 hours.
Mathematics 4 (Trigonometry); 2 hours.
Mathematics 6 (Analytical Geometry); 5 hours.
Mathematics 7 (Differential Calculus); 5 hours.
Mathematics 9 (Integral Calculus); 5 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 1, 3; 10 hours.
Rhetoric 2; 6 hours.

Elective

List A (Physical)

Physics 5 and 6; 12 or 16 hours.
Physics 7; 6 or 10 hours.
Physics 8; 6 hours.
Mathematics 10 (Theory of Equations); 3 hours.
Mathematics 16 (Differential Equations); 3 hours.
Astronomy 4, 5; 5 to 10 hours.

List B (Chemical-Physical)

Physics 5 and 6; 12 or 16 hours.
Physics 7; 6 or 10 hours.
Chemistry 3a; 5 hours.
Chemistry 9, 9a; 5 hours.
Chemistry 5a; 5 hours.
Chemistry 5b; 3 or 5 hours.
Chemistry 12; 3 hours.
Chemistry 7; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

The foregoing courses have been arranged for those who wish to prepare themselves for special work in physics

and allied sciences. In addition to the subjects of the prescribed list, two general lines of work are offered under elective lists A and B, one of which must be taken with the list of prescribed subjects. The advanced theoretical work of the first of these lines is largely general mechanical physics; that of the second more especially chemical. The laboratory work follows the same lines. The additional studies necessary to complete the number of hours required for graduation may be elected from the various University courses, with the approval of the head of the department of physics.

COURSE OF INSTRUCTION

Required for the Degree of B.S. in Physics

First Year

1. Advanced Algebra and Trigonometry (Math. 2, 4); German B or 1 or 4; Chemistry 1; Rhetoric 2; Military 2; Physical Training 1, 3 or 7, 9.

2. Analytical Geometry (Math. 6); German B or 3 or 5 or 6; Chemistry 2, 4; Chemistry 3a, or Rhetoric 2; Military 1, 2; Physical Training 1, 3 or 7.

Second Year

1. Physics 1, 3; Differential Calculus (Math. 7); Rhetoric 2; German 4, or Chemistry 5a; Military 2.

2. Physics 1, 3; Integral Calculus (Math. 9); Rhetoric 2; German 5 or 6, or Chemistry 5b; Chemistry 12; Military 2.

Third Year

Physics 5, 6; Mathematics 10, 16; Astronomy 4, or Chemistry 7; Electives.

Fourth Year

Physics 7, or Physics 7, 8; Electives.

It will generally be necessary to follow the above, but other arrangements consistent with sequences of courses may be made in special cases.

DESCRIPTION OF DEPARTMENTS

CHEMISTRY

The chemical offerings include courses of instruction in general elementary, inorganic, organic, physical, and theoretical chemistry, and several lines of qualitative and quantitative analysis. (See *Chemistry,* in DESCRIPTION OF COURSES, p. 201.)

The first year is devoted to the consideration of general descriptive inorganic chemistry and qualitative analysis, the first half of the second year is occupied with courses in quantitative analysis, both gravimetric and volumetric, and the second half year is given to general organic chemistry. The work of these two years and that of the first half of the third year, which is devoted to more advanced organic chemistry, is prescribed for all students of the chemical courses, and is intended to impart a knowledge of the facts of chemistry, to develop skill and accuracy in manipulation, and to constitute a scientific grounding in the fundamental principles and laws of chemistry.

Aside from this prescribed work there are offered numerous electives in chemistry, which, by judicious selection, afford opportunity for specialization along any of the lines of analytical, pharmaceutical, technological, or pure chemistry.

In order that an acquaintance with chemical literature may be had, and to keep pace with the advances in chemistry, students of the third and fourth year are required to take part in the chemical seminary, in which the work consists chiefly of reviews and discussions of assigned articles in current numbers of the various journals.

One or two semesters' work in the fourth year must be devoted to the investigation of some chemical problem. This practice furnishes an opportunity to specialize along some chosen line and serves as an introduction to the methods of chemical research.

To students who are preparing to become teachers of

physical science opportunity is offered for the acquirement of some experience in supervising laboratory practice in elementary chemistry. The work includes criticism and discussion of methods and application of pedagogical principles and is conducted with the coöperation of the department of pedagogy.

APPLIED CHEMISTRY

In this department there are offered ten separate courses in technological subjects. These require as preliminary work the seven general and analytical courses. They may be further supplemented by special advanced work along some chosen line. Frequent visits are made to metallurgical and other works employing chemical processes.

PHYSICS

The department of physics offers a lecture course in general descriptive physics with class-room experiments, extending through the year, and accompanied by an introductory laboratory course in physical measurements. This is followed by two courses, one experimental and the other theoretical. In the experimental course the student is trained in the most exact methods of making the fundamental physical measurements and taught how to discuss his results. The theoretical course running parallel to this discusses, with the aid of elementary calculus, the theory of some of the main subjects of physics. In the senior year the student is supposed to take up some special problem for investigation and to center his laboratory work about that. An advanced mathematical course is also offered for those who wish to follow the most advanced theories and results of the science.

THE GENERAL SCIENCE GROUP

AIMS

The courses of the general science group are especially intended:

1. To give a thorough liberal education with a basis in the sciences, objective and subjective.

2. To prepare for the pursuit of specialties in the various sciences as a personal career.

3. To prepare for the teaching of the mathematical, natural, or physical sciences in high schools and colleges.

Special advantages are offered graduate students for whose work the museums, laboratories, and libraries, and the field and experimental equipment of the University and of the associated State Laboratory of Natural History, furnish an extraordinarily full provision.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Art and Design, 1, 2; 2 hours (p. 180).
Chemistry 1, 3a or 3b and 4; 10 hours.
German B or 1, 3, 4, 5 or 6; 20 hours.
Mathematics 3 or 4; 2 or 3 hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.

ELECTIVE

List A (Major Courses)

Astronomy 4 to 6; 3 to 10 hours.
Botany 1 to 5, 7, 9, 10; 10 to 44 hours.
Chemistry; 3 to 50 hours.
Entomology 2, 3, 5, 6; 5 to 30 hours.
Geology 1, 2, 4; 5 to 20 hours.
Mathematics 1, 3, 5 to 26; 2 to 50 hours.
Mineralogy 1, 2; 5 or 10 hours.
Paleontology 1; 5 or 10 hours.
Physics; 10 to 20 hours..
Physiography 1; 5 hours.
Physiology 1, 2, 3, 5; 10 to 30 hours.
Psychology 1 to 8; 16 hours.
Zoölogy 1, 2, 3, 4, 8, 9; 5 to 45 hours.

List B (Minor Courses)

Botany 11; 5 hours.
Geology 3; 5 hours.

Physics 2; 5 hours.
Physiology 4; 5 hours.
Zoölogy 10; 5 hours.

The major and minor courses in lists A and B in this group are respectively the maximum offerings and the minimum requirements in the various subjects of these lists.

REQUIREMENTS FOR GRADUATION

In the general science group a student may graduate from either a specialized or a general course.

A specialized course is one containing at least two years of major work in a single subject preceding the senior year, followed by an additional year of major work in that subject, and the writing of an acceptable thesis. No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work. Only those students who pursue a specialized course will, as a rule, be selected for fellowships, scholarships, and other similar University honors. A general course is one in which less than three years' work in any one line precedes graduation, and in which no thesis is required.

Students who specialize in geology or mineralogy may count all work done in these branches and their credits in chemistry in the list of credits required before the beginning of the senior year.

No student may graduate in general science until he has completed all the required courses, has done at least thirty hours' work on one major elective, or forty hours' work on more than one such major (list A), and has taken at least minor courses in all the other electives in which such courses are offered (list B). The necessary number of one hundred and thirty hours for University studies may be made up by additional elections from any courses offered in the College of Science or in the College of Literature and Arts the precedent requirements for which the student can meet.

A graduate from a four years' medical course at a school recognized by the University as of high rank may, if a matriculated student, receive for his professional medical studies credits in this group equal to one year's resident study at the University, being thus enabled to obtain his bachelor's degree in science after a three years' University course.

A student taking a three years' course of prescribed science work (see page 141), followed by three years of professional work at the University Medical College, may obtain for this joint six years' course the degrees of bachelor of science and doctor of medicine.

COURSES OF INSTRUCTION

The following list of prescribed studies and major electives shows the semesters in which the principal studies of the natural science group must be taken. The prescribed studies, which are in italics, must be taken also in the year indicated. Students intending to graduate from a specialized course should begin the study of their special subjects at the earliest time practicable. *In making up the study list for any semester, students should take the subjects italicized and select from the remainder enough to make the requisite amount of work.*

First Year

1. *Art and Design* 1; *Chemistry* 1; *Mathematics* 3 or 4 *(Trigonometry)*; *Military* 2; *Physical Training* 1, 3 or 7, 9; Mathematics 1 or 2 (Advanced Algebra); Botany 2, 11; Zoölogy 10.

2. *Chemistry* 2, 3a, or 3b and 4; *Military* 1, 2; *Physical Training* 1, 3 or 7; Mathematics 6; Physics 2; Art and Design 2; Botany 1, 5; Entomology 1; Zoölogy 1.

Second Year

1. *German* B or 1 or 4; *Military* 2; Mineralogy 1; Physics 1, 3; Botany 2, 3, 4, 11; Entomology 2, 4; Zoölogy 2, 10; Mathematics; Psychology; Chemistry.

2. *German* B or 3 or 4 or 6; *Military* 2; Geology 1, 3; Physics

1, 3; Botany 1, 3, 4, 5; Entomology 1, 3; Zoölogy 1, 3, 4, 9; Physiology 4; Mathematics; Psychology; Chemistry.

Third Year

1. *German* 4; *Rhetoric* 2; Geology 2; Physiography 1; Mineralogy 1; Botany 2, 3, 4, 7, 8, 10, 11; Entomology 2, 4, 5; Zoölogy 2, 4, 10; Physiology 5; Mathematics; Psychology; Chemistry.

2. *German* 5 or 6; *Rhetoric* 2; Geology 1, 3; Mineralogy 2; Paleontology 1; Botany 1, 3, 4, 5, 7, 10; Entomology 1, 3, 5; Zoölogy 1, 3, 4, 9; Physiology 4, 5; Chemistry.

Fourth Year

1. French 5; Geology 2, 4 (Thesis); Physiography 1; Botany 3, 4, 7, 9 (Thesis), 10; Entomology 2, 4, 5, 6 (Thesis); Zoölogy 2, 4, 8 (Thesis). 10; Mathematics; Chemistry; Psychology; Electives from the College of Literature and Arts.

2. French 5; Geology 3, 4 (Thesis); Mineralogy 2; Paleontology 1; Botany 3, 4, 7, 9 (Thesis), 10; Entomology 1, 3, 5, 6 (Thesis); Zoölogy 1, 3, 4, 8 (Thesis), 9, 10; Mathematics; Chemistry; Psychology; Electives from the College of Literature and Arts.

SPECIAL SUGGESTED COURSES

As aids to election a number of outline courses have been arranged, covering all the requirements for graduation, and making such a selection of studies within these limits as is best adapted to certain special ends. These courses are to be taken as suggestions only, made for the convenience of students. Students having definite objects in view which require a careful selection of studies are advised to consult with the Dean of the College before arranging their study lists. Outlines of specialized courses in each department may be had from the heads of departments, and complete tabulated outlines of the following described courses may be obtained from the Dean of the College.

Courses for Teachers.—Four tabulated courses have been prepared for the benefit of prospective science teachers. These include a general science teacher's course, and courses for special teachers of biology, of physics and chemistry, and of geology and physiography. These courses are intended

especially to prepare for the work of the science teacher in secondary schools, and with a proper course of graduate study following will also fit for instruction work in college science.

Special Course for Women.—A suggested course covering the requirements for graduation in the general science group, but containing also certain courses of instruction which have a special bearing on the management of the home, has been arranged especially for women students who wish a general science education without meeting in full the special requirements of the household science group in this College. A copy of this course may be had by application to the Registrar of the University or the Dean of the College.

BOTANY

Eleven courses of instruction are offered in this subject, each extending through one semester or through the year. The first two courses, each of one semester, are intended to serve a double purpose of an introduction to the work which follows for students making botany a specialty, and to afford other students an opportunity to gain the general facts of the science and to acquaint themselves with the methods of instruction. Each course as enumerated counts as major work. To a very large extent natural objects are studied rather than books, but constant endeavor is made to introduce students to pertinent existing literature. In the laboratory much use is made of the compound microscope, and special attention is given to its manipulation for best results and to the preparation of objects. Course 8 is devoted to economic botany. Course 11 is an introductory one for those not offering entrance credits in the subject.

EQUIPMENT

The botanical laboratories are: One of large size with full equipment of microscopes, microtomes, aquaria, models, charts, etc., for general work; one specially arranged and

fitted up for bacteriological instruction and investigation, supplied with sterilizers, thermostats, microscopes, a full line of glassware, metal vessels, and chemicals; one adjoining the latter and used in connection with it for vegetable physiology, and having attached a glazed structure, two stories in height, well adapted to facilitate experiments upon living plants and for the growth of specimens required in the laboratories. The department is furnished with a lecture-room; a room for the herbarium and facilities for work in connection therewith; workrooms for the preparation of specimens and material; storage-rooms for apparatus, utensils, reagents, and materials; darkroom for photography; rooms for offices—all in convenient association and provided with the necessary materials and apparatus for ordinary class work and for advanced research.

Special attention has been given to parasitic fungi; and the collection of specimens and of the literature upon the subject are ample for various lines of original investigation.

ENTOMOLOGY

It is the special purpose of the offerings in this department to utilize to the utmost for purposes of instruction the unusual opportunities for practical entomological experience, and the very large entomological collections, library, and equipment belonging to the University or made immediately available to students by the State Laboratory of Natural History and the office of the State Entomologist, both permanently established here. The entomological work of the Natural History Survey, now prosecuted continuously, and the scientific and economic studies of the State Entomologist and his assistants, give to entomological students extraordinary privileges of experience in the laboratory, the office, and the field in both scientific and economic work.

Several courses of systematic study, elementary and advanced, are conducted by an instructor responsible only for

entomological teaching, and graduate work in this department will be fully provided for according to demand. Six courses are offered: one in biological entomology, without conditions precedent; one in practical and economic entomology, also unconditioned; two independent, but related, semester courses making together a year of major work, with a year's zoölogy, or a semester of elementary entomology, as a precedent requirement; and two advanced courses, for those specializing in entomology, leading to graduation with an entomological thesis.

EQUIPMENT

The instructional equipment of this department consists of a well-furnished special laboratory for students, with an ample general apparatus for field work, and two special collections, one for reference by students engaged in the determination of species, and the "Bolter collection" of 100,000 specimens—maintained separately by the University and open to advanced students under suitable restrictions. The department also owns numerous *papier-mache* models and a large collection of wall charts, together with an extensive series of microscopic slides especially prepared for students' use.

GEOLOGY, MINERALOGY, AND PHYSIOGRAPHY

In this department four courses are offered in geology, two in mineralogy, one in paleontology, and one in physiography.

For students who wish more than a general acquaintance with these subjects, courses aggregating forty-five hours of class room and laboratory instruction have been arranged in geology, mineralogy, and paleontology, viz., mineralogy 1, 5 hours; geology 1 and 2, 10 hours; mineralogy 2, 5 hours; physiography 1, 5 hours; paleontology 1, 10 hours; geology 4, 10 hours.

To those who desire merely an outline of the most prom-

inent facts and theories of geology, with some idea of the methods by which the geologist arrives at his conclusions, a course of five hours (geology 3) is offered.

EQUIPMENT

The department occupies three students' laboratories, an instructors' laboratory, a lecture room, two collection rooms, a store room, a dark room for photography, and a private office.

Apparatus.—The laboratories contain individual desks for fifty-six students. Each desk is furnished with reagent bottles, Bunsen burners, and all the other apparatus now considered necessary to a complete outfit for blowpipe work in a first-class laboratory. They are also provided with a spectroscope, specific gravity and analytical balances, chemical hoods, a muffle furnace, contact and reflecting goniometers; lithological microscopes; crystal models (575); thin sections of minerals and rocks (745); an apparatus for cutting and grinding thin sections of rocks, with a Jenney motor; apparatus for micro-chemical analysis; a self-registering barometer; an aneroid barometer and a telescopic hand level for topographic work.

For the recitation room there is a set of Kiepert's physical maps; Ramsay's orographic map of the British Isles; Haart's Alps; Chauvanne's Asia; Sydow-Habenicht's Hand Atlas; geological and soil maps of Illinois; a series of geological maps of the United States, representing land development during the successive periods; a set of charts illustrating orography, erosion, deposition of metals, etc., a set of physiographic models; a series of relief maps; 600 topographic sheets and a large contour map of the United States from the U. S. G. S.; a complete lantern outfit, with microscopic and solar attachment; seven hundred lantern slides; an equipment for photography and the manufacture of lantern slides.

Materials.—The collection of fossils comes principally from the paleozoic, but includes a representative series from

the higher groups. It contains 45,000 specimens (seven hundred and forty-two of the types described in the reports of the Illinois geological surveys are included) and 200 thin sections of corals and bryozoa.

The collection of minerals contains 10,900 specimens, and that of rocks 5,500 specimens, among which is a large number of polished granites, marbles, and other ornamental building stone.

There is also a collection of Illinois soils containing 104 specimens; and a large collection of Illinois clays with their manufactured products.

PHYSIOLOGY

The special objects of the courses in physiology are as follows: (1) To give to prospective students of medicine a detailed practical knowledge of the normal histological structure and vital processes of the body, and a working familiarity with the instruments of precision used in the investigation of disease. (2) To give to students of all branches of biology a training in deducing logically necessary conclusions from data obtained by their own observations. (3) To furnish such a knowledge of physiology as will serve as a basis for future studies in hygiene.

The laboratory method of instruction is chiefly followed, supplemented, when desirable, by lectures, demonstrations, references to standard literature, and recitations. The laboratory work predominates in the major and advanced courses; the lectures, demonstrations, and recitations in the minor course.

EQUIPMENT

The department of physiology occupies four rooms in Natural History Hall; a general laboratory, a lecture room and a private laboratory on the top floor and an animal room in the attic. The general laboratory, thirty-five by fifty-six feet, is fitted at one end with desks of the most approved pattern for chemical and similar work, and at the

other end with heavy tables, especially designed for use with the microscope and other apparatus requiring a stable support.

The department is equipped with a full set of apparatus for lecture demonstration and for laboratory work. Much of this apparatus has been recently imported from Europe and is of the latest and best pattern. Much of it is adapted to the most delicate work of demonstration or research, and is not to be found in the average physiological laboratory. Among such apparatus may be mentioned a Zeiss micro-spectroscope for work with minute quantities of material—as blood stains in medico-legal investigations; a hæmocytometer of Gowers and of Thoma-Zeiss; Fleischl's hæmometer, DuBois Reymond induction coil, latest pattern; DuBois Reymond myographion with tuning fork and Desprez signal for measuring intervals of less than one-thousandth second; ergograph; Zimmermans-Ludwig's drum kymograph, latest pattern; Fick kymograph; sphymograph (Marey); Fleischl's spectro-polarimeter; Knop azotometer; a Kjeldahl apparatus and a complete set of Hempel's apparatus for gas analysis (technical).

The histological equipment includes a Bausch & Lomb microscope with nosepiece and sub-stage illumination for use of each student, and all the accessory apparatus and reagents for class work or research in histology. There is also a cabinet of histological specimens to which the students have access for study or reference, but the subject is taught with all the details of technique, and the student is required to prepare and examine his own material, and the specimens thus prepared remain his own property, and are of considerable value.

ZOÖLOGY

Seven undergraduate courses are taught in this department, and work is offered in three graduate courses. Students will ordinarily begin their work in zoölogy with course 10 (elementary zoölogy), of which only a part, taken as a

fractional course, will be required of those who have an entrance credit in zoölogy or biology. The courses are so organized as to lead through zoölogy 10, 1, and 2 to the course especially designed for teachers (zoölogy 9), or to advanced zoölogical work; through zoölogy 10 and 1 (invertebrate zoölogy) to general entomology; through zoölogy 10 and 2 (vertebrate zoölogy) to embryology and physiology and the University preparation for medical study.

EQUIPMENT

The equipment of the zoölogical department is contained in three students' laboratories, an instructor's laboratory, a lecture room, a private office, a store room, and a dark room for photography. It includes forty-four compound microscopes of modern makes, microtomes of five patterns, and the usual equipment of incubators, paraffin baths, aquaria, etc. Advanced and graduate students have the free use of the library and equipment of the State Laboratory of Natural History, which occupies rooms in Natural History Hall. They are thus afforded ample opportunity for prolonged original work in several departments of zoölogical science, especially in those relating to the zoölogy of Illinois. The Bulletin of the State Laboratory is open to graduates for the publication of their papers.

HOUSEHOLD SCIENCE GROUP

AIMS

1. To give a liberal education with a basis of pure and applied science.

2. To provide for women students, specializing in science, an opportunity for the correlation of their work with special applications of science to the home.

This group of courses includes those subjects whose applications have a definite relation to the affairs of the home. It is thought that by the correlation of the distinctive household science courses with some of the regular courses given

in the various colleges of the University unusual facilities will be provided for a study of the applications of art and science to the affairs of the household.

In accordance with these ideas, in addition to general courses in chemistry, botany, zoölogy, physics, physiology, and art and design, the course contains a year's work in household chemistry, special semester courses in application of chemistry and bacteriology to the household; preparation and selection of food; architecture, and economics. These added to the courses in mathematics and German necessary to graduation in the general science group yet leave the student opportunity for much elective work.

For description of the department of Household Science see p. 150.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Art and Design 1b, 16; 4 hours.
Botany 1, 5; 10 hours.
Chemistry 1, 3b, 4, 5a or 20, 5c; 20 hours.
German 1, 3, 4, 5 or 6; 20 hours.
Household Science 1, 2, 3, 4 and 5; 15 hours.
Mathematics 3 or 4; 3 or 2 hours.
Physics 2; 5 hours.
Physiology 4; 5 hours.
Rhetoric 2; 6 hours.
Zoölogy 10; 5 hours.
Physical Training 1, 3; 2½ hours; or 7, 9; 3 hours.

SUGGESTED ELECTIVES

Botany 8; 2 hours.
English 1; 5 hours.
Economics 17; 2 hours.
French 1; 5 hours.
History 2; 2 hours.
Psychology 2; 5 hours.
Education 3; 3 hours.

REQUIREMENTS FOR GRADUATION

No student may graduate in the household science group until she has completed the prescribed course. The neces-

sary number of one hundred and thirty hours for university studies may be made up by additional electives from any courses offered in the College of Science or in the College of Literature and Arts, the precedent requirements for which the student can meet.

COURSE OF INSTRUCTION

For the Degree of B.S. in Household Science

First Year

1. Art and Design 1b; Chemistry 1; Mathematics 4; Rhetoric 2; Zoölogy 10.

2. Household Science 1; Chemistry 3b and 4; Physics 2; Rhetoric 2.

Second Year

1. Chemistry 5a or 20; German 1; *Household Science 5; Art and Design 16.

2. Chemistry 5c; German 2; Botany 1; Art and Design 16.

Third Year

1. Botany 5; German 4; Household Science 2; *Household Science 4.

2. German 5 or 6; Household Science 3; *Household Science 4.

Fourth Year

See requirements for graduation and list of suggested electives.

THE MATHEMATICAL GROUP

AIMS

The mathematical group aims to lay the mathematical foundation for special work in any one of three lines, as well as to offer an opportunity for advanced work. It is hoped that the courses offered will meet the requirements of those who need mathematics as a tool as well as of those who wish to make it a specialty.

Parallel to the pure mathematics two lines of associated work in applied mathematics are offered, namely, in physics and astronomy. Either of these may be taken by the stu-

*Household Science 4 will be given each term in 1901-1902. Household Science 5 may be given each term in 1901-1902. For a description of the work and the equipment of the Department of Household Science, see pages 150, 151.

dent wishing to graduate from this group. The one leads through the physics of the sophomore year to the mathematical theory of electricity and magnetism, heat, light, and sound; the other through surveying to celestial mechanics and general and mathematical astronomy. In addition to these, a course in astronomy and physics is offered, including the mathematics through the junior year, but leading to theoretical astronomy and advanced physics in the senior year.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

General Engineering Drawing 1a, 1b; 5 hours (p. 171).
Mathematics 1, 3, 6, 7, 9, 10, 11, 16, 17, 20, 25; 36 hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.

ELECTIVE

List A (Mathematics and Astronomy)

Mathematics 13, 23 or 12, 18 or 24; 6, 9 or 12 hours.
Mathematics 21, 22, or Astronomy 7, 9; 6 hours.
Mathematics 15, or Astronomy 10; 2 hours.
Astronomy 4, 5, 6; 10 hours.
Physics 1, 3; 10 hours.
Civil Engineering 10; 3 hours.
French 1, 2, 5; or German B or 1, 3, 4, 6; 20 hours.

List B (Mathematics and Physics)

Mathematics 13, 23 or 12, 18 or 24; 6, 9, 12 hours.
Mathematics 15; 2 hours.
Physics 1, 3, 5, 6; 20 hours.
French 1, 2, 5; or German B or 1, 3, 4, 6; 20 hours.

List C (Astronomy and Physics)

Astronomy 7, 9, or Mathematics 21, 22; 6 hours.
Astronomy 4, 5, 6; 6 hours.
Astronomy 10; 4 hours.
Mathematics 26; 2 hours.
Physics 1, 3, 5, 6; 15 hours.
Civil Engineering 10; 3 hours.
German B or 1, 3, 4, 5 or 6; 20 hours.

List D

Mathematics 14, 26; 4 hours.
Anthropology 1; 3 hours.
Botany 1, 2, 11; 5 or 10 hours.
Chemistry 1, 3a or 3b, 4; 5 or 10 hours.
Economics 1 or 2 to 8, 11 to 17; 2 to 34 hours.
English 1, 2; 10 hours.
French 1, 5, 2; or German B or 1, 3, 4, 5 or 6; 20 hours.
Geology 1, 3; 5 to 15 hours.
History 1, 2; 2 to 10 hours.
Latin 1; 10 hours.
Library Science 12; 1 hour.
Mineralogy 1, 2; 5 or 10 hours.
Education 1 to 8; 3 to 20 hours.
Philosophy 1 to 8; 2 to 24 hours.
Physiology 4 or 1; 5 or 10 hours.
Psychology 1 to 5; 3 to 24 hours.
Public Law and Administration 1 to 7; 2 to 29 hours.
Theoretical and Applied Mechanics 1; 5 hours.
Zoölogy 1, 2, 7, 10; 5 to 15 hours.

REQUIREMENTS FOR GRADUATION

To graduate as a bachelor of science in the mathematical group, it is necessary for the student to complete the list of prescribed subjects, together with those of any one of lists A, B, or C of electives, and to present an acceptable thesis. The necessary number of 130 hours may then be made up by election from lists A, B, C, and D.

COURSES OF INSTRUCTION BY YEARS AND SEMESTERS

The studies of the mathematical group may best be taken according to the following outlines of courses in mathematics and physics, in mathematics and astronomy, and in astronomy and physics, respectively.

COURSE OF INSTRUCTION

For the Degree of B.S. in Mathematics and Physics

First Year

1. Plane and Spherical Trigonometry (Math. 3); Advanced Algebra (Math. 1); Engineering Drawing 1a, 1b; French 1 or 5, or

German B or 1 or 4; Military 2; Physical Training 1, 3 or 7, 9; Rhetoric 2.

2. Analytical Geometry (Math. 6); French 1 or 5, or German B or 3 or 5 or 6; Military 1, 2; Physical Training 1, 3 or 7; Rhetoric 2; Electives.

Second Year

1. Differential Calculus (Math. 7); Physics 1, 3; French 2 or German 4; Military 2.

2. Integral Calculus (Math. 9); French 2 or German 5 or 6; Military 2; Physics 1, 3.

Third Year

1. Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Differential Equations (Math. 16); Physics 5; Electives.

2. Geometry of Space (Math. 17); Calculus of Variations (Math. 20); Partial Differential Equations (Math. 25); Physics 5; Electives.

Fourth Year

1. Modern Geometry (Math. 23), or Invariants (Math. 12), or Theory of Functions (Math. 13); Physics 6; Mathematical Seminary and Thesis (Math. 15); Electives.

2. Higher Plane Curves (Math. 18), or Algebraic Surfaces (Math. 24), or Theory of Functions (Math. 13); Physics 6; Mathematical Seminary and Thesis (Math. 15); Electives.

COURSE OF INSTRUCTION

For the Degree of B.S. in Mathematics and Astronomy

The freshman and sophomore years are the same as in the preceding scheme except that surveying (C. E. 10) is required the first year and that astronomy 4 takes the place of physics 1, 3, of the second semester, second year.

Third Year

1. Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Least Squares (Math. 14); Calculus of Variations (Ast. 11); Astronomy 5; Electives.

2. Differential Equations (Math. 16); Partial Differential Equations (Math. 25); Astronomy 6; Geometry of Space (Math. 17); Electives.

Fourth Year

1. Theory of Functions (Math. 13); Astronomy 7; Astronomy 10 or Math. 15; Electives.

2. Theory of Functions (Math. 13); Astronomy 9; Astronomy 10 or Math. 15; Electives.

COURSE OF INSTRUCTION

For the Degree of B.S. in Astronomy and Physics

Freshman and sophomore years same as before excepting that astronomy 4 is required in the sophomore year.

Third Year

1. Astronomy 5; Least Squares (Math. 14); Theory of Equations (Math. 10); Theory of Determinants (Math. 11); Differential Equations (Math. 16).

2. Astronomy 6; Calculus of Variations (Math. 20); Partial Differential Equations (Math. 25); Geometry of Space (Math. 17); Electives.

Fourth Year

1. Astronomy 7; Physics 5, 6; Electives.
2. Astronomy 9; Physics 5, 6; Electives.

DESCRIPTION OF DEPARTMENTS

ASTRONOMY

The instruction given in astronomy is planned to meet the needs of four distinct classes of students, viz.: (a) those who do not wish to take the time necessary to become thoroughly familiar with the facts, principles, and methods of the science, but who desire a general acquaintance with its present state and some idea of how this state has been reached; (b) engineers whose work necessitates a practical knowledge of some parts of it; (c) those students of the College of Science who wish to specialize in the geological and biological sciences, and who require a more intimate acquaintance with astronomy than can be got in one term's work; (d) those students who wish to make astronomy their specialty.

In the first courses of instruction the work of the laboratory is subordinated to that of the recitation room, but as soon as the general notions of the science become fixed in his mind, the student is required to take data and solve prac-

tical problems in the Observatory. After the student has been given sufficient practice to enable him to comprehend and appreciate the more advanced subjects of theoretical astronomy, an opportunity is provided him to familiarize himself with these subjects by the lectures and work of the senior year.

For students of class (a), course 4, presupposing mathematics through trigonometry only, is offered; for the second, courses 4 and 6, requiring the same preliminary mathematics and a term's experience in practical work with instruments, is given; for the third, courses 4, 5, and 6, extending through four terms and requiring the same mathematical preparation as course 4; and for the fourth class, all astronomical courses from 4 to 13, inclusive, are offered. Courses 7 and 9 are to be given in alternate years with 12 and 13. The courses in astronomy 7, 9, and 10, as also 12 and 13, count either as graduate or as undergraduate work, but neither set can count for both. The subjects treated in the astronomical seminary will be related to those considered in courses astronomy 7 and 9, and 12 and 13, respectively.

EQUIPMENT

The equipment of the astronomical department consists of a students' astronomical observatory, containing the following instruments:

An equatorial telescope of 12 inches aperture, the optical parts of which are by Brashear. The instrument was built and mounted by Warner & Swasey. It is provided with graduated circles, driving clock, filar micrometer, a complete set of positive and negative eyepieces, and a dial for setting in right ascension. The construction of the telescope is such that spectroscopic, or photographic, apparatus may be attached without further work on the mechanician's part; a new 4-inch equatorial by Saegmüller with graduated circles, driving clock, and eyepieces, and an old 4-inch equatorial by Newton & Co., to be used in photometric eye

estimates; a combined transit and zenith telescope by Warner & Swasey, with the usual micrometer and a number of smaller instruments, such as chronometers, a Riefler clock, a polarizing photometer, an altazimuth, two chronographs, an Eastman personal equation machine, two sextants with mercurial horizons, two small astronomical transits, one of 21 inches focal length and $1\frac{7}{8}$ inches aperture, by Saegmüller, and one 24 inches focal length and 2 inches aperture, by Newton & Co.; a Green's barometer and thermometer, a mier mark, and half a dozen masonry piers for portable instruments for the use of students in practical astronomy. A master clock for the electrical control of secondary clocks in the various buildings on the campus is mounted in the clock room of the Observatory.

MATHEMATICS

The courses offered in pure mathematics are so arranged as to meet the needs (a) of those who desire such mathematical knowledge as is necessary to carry on investigation in some line of applied mathematics, and (b) of those who wish to make mathematics a specialty. The instruction is given, for the most part, by the aid of text-books, but several of the advanced courses are given by lectures with collateral reading. To cultivate a spirit of independent investigation, all senior and graduate students who make mathematics their major, are required to take in connection with their thesis a year's work (two-hour study) in the mathematical seminary, where the results of their investigation are presented and discussed. To the seniors and graduate students two lines of work in pure mathematics are offered, and each is given in alternate years.

Courses 10 to 26 count either as graduate or undergraduate work, but in no case as both.

EQUIPMENT

The department is supplied with eighty-five of Brill's mathematical models. The collection includes an excellent

set of plaster models illustrating the properties of surfaces of the second order, a set of string models for ruled surfaces, a set of paper models illustrating the real circular sections of certain conicoids, a complete set of Brill's models for the theory of functions, and a collection of surfaces of third order.

THE PEDAGOGICAL GROUP

AIMS

This group is intended for the students of the College of Science who are looking forward to the profession of teaching. The secondary schools of to-day are demanding fully prepared teachers. This preparation does not mean simply a familiarity with the content of the subjects to be taught, but a knowledge of the best methods of their presentation. It must include a study of school subjects as such, both in their relation to the modern school curriculum and to the growth of school systems. A study of mental processes and their development must form a part of such a preparation, as well as an introduction to general philosophical movements. The courses are so arranged under this group that the student may select subjects ordinarily associated in high school work, and, while pursuing them as specialties, take such pedagogical, psychological, and philosophical work as would make most probable their successful presentation in the school room. The required studies of the group are all junior or senior subjects, and the group may be elected at the end of the sophomore year.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Education 1; 5 hours.
Education 2; 5 hours.
Education 3a, 6; 3 hours.
Education 7 or 8; 2 hours.
Psychology 1; 3 hours.
Philosophy 1; 3 hours.
Mathematics 3 or 4; 3 or 2 hours.

Military 1, 2; 5 hours.
Physical Training—
Men, 1, 3; 2½ hours.
Women, 7, 9; 3 hours.
Rhetoric 2; 6 hours.

ELECTIVES

To be selected from the offerings of the University subject to the requirements for graduation.

REQUIREMENTS FOR GRADUATION

In order to graduate in the pedagogical group the candidate must have completed all the prescribed courses above specified and have taken at least four additional hours from other courses offered by the department of education, or of psychology. Besides this, two major subjects must be chosen from the offerings of some group in the College of Science, in each of which at least twenty hours' work must be taken. In addition, a sufficient number of electives must be taken to make the required total of 130 hours. These may be selected from any university offerings, subject to the approval of the Professor of Education.

SUGGESTED COURSES

The following courses are intended especially to prepare for the work of the science teacher in the secondary schools, and with a proper course of graduate study following will fit the student also for instruction work in college science. Those taking these or equivalent courses will be given the preference, other things being equal, in making recommendations of science teachers.

TEACHERS' GENERAL SCIENCE COURSE

FIRST YEAR

1. Free-Hand Drawing (Art and Design 1b); Elementary and Experimental Chemistry (Chem. 1); Zoölogy 10 or Botany 11; Advanced Algebra and Trigonometry (Math. 1 and 3); Military 2; Physical Training 1, 3 or 7, 9.

2. Qualitative Analysis (Chem. 3b); Elements of Organic

Chemistry (Chem. 4); General Invertebrate Zoölogy (Zoöl. 1); General Astronomy (Astron. 4); Rhetoric and Themes (Rhet. 2); Military 1, 2; Physical Training 1, 3 or 7.

SECOND YEAR

1. Vertebrate Zoölogy and Comparative Anatomy (Zoöl. 2); Vegetable Morphology (Botany 2); German 1; Rhetoric and Themes (Rhet. 2); Military 2.

2. Vegetable Histology and Physiology (Botany 1); German 3; Chiaroscuro (Art and Design 2); Logic (Phil. 1b); Psychology 1; Military 2.

THIRD YEAR

1. General Physics (Physics 1); Introduction to Physical Measurements (Physics 3); Mineralogy 1; German 4; Principles of Education (Ed. 1).

2. Physics 1 and 3; Geology 1; German 5 or 6; History of Education (Ed. 2).

FOURTH YEAR

1. Physiography 1; General Astronomy and Cosmogony (Astron. 5); Outlines of Philosophy (Phil. 2); General Method (Ed. 3) or High School Organization (Ed. 6); Special Methods in Science and Mathematics (Ed. 7); Seminar in Education (Ed. 10).

2. Physiology 4; Modern Philosophy (Phil. 4); Psychology; Comparative Study of School Systems (Ed. 5); Psychology Applied to Education (Ed. 9); Seminar in Education (Ed. 10).

TEACHERS' COURSE IN THE BIOLOGICAL SCIENCES

FIRST YEAR

1. Free-Hand Drawing (Art and Design 1b); Elementary and Experimental Chemistry (Chem. 1); Advanced Algebra and Trigonometry (Math. 2, 4); Zoölogy 10 or Botany 11; Military 2; Physical Training 1, 3 or 7, 9.

2. Qualitative Analysis (Chem. 3b); Elements of Organic Chemistry (Chem. 4); Photography (Chem. 22a); General Invertebrate Zoölogy (Zoöl. 1); Vegetable Histology and Physiology (Botany 1); Military 1, 2; Physical Training 1, 3 or 7.

SECOND YEAR

1. German 1; Vertebrate Zoölogy and Comparative Anatomy (Zoöl. 2); Morphology of Plants (Botany 2); Rhetoric and Themes (Rhet. 2); Military 2.

2. German 3; General Entomology (Zoöl. 6); Plant Physiology (Botany 3b); Rhetoric and Themes (Rhet. 2); Military 2.

THIRD YEAR

1. German 4; General Entomology (Zoöl. 6); Taxonomy of Spermaphytes (Botany 4a); Principles of Education (Ed. 1).

2. German 5 or 6; Teachers' Zoölogy (Zoöl. 9) or Botany 9; General Geology (Geol. 3); History of Education (Ed. 2).

FOURTH YEAR

1. Advanced Zoölogy (Zoöl. 4) or Botany 9; Logic (Phil. 1); Outlines of Philosophy (Phil. 2), Psychology 1; General Method (Ed. 3) or High School Organization (Ed. 6); Special Methods in Science and Mathematics (Ed. 7); Seminar in Education (Ed. 10).

2. Elementary Physics (Physics 2); Elementary Physiology (Phys. 4); Modern Philosophy (Phil. 4); Comparative Study of School System (Ed. 5); Psychology applied to Education (Ed. 9); Seminar in Education (Ed. 10).

A limited number of students will be permitted to act as volunteer assistants in elementary courses in botany and zoölogy as a part of the work in zoölogy 4 and botany 9. Such assistants will receive instruction in the collection and preparation of laboratory material, in the use and care of laboratory equipment, and in the principles and methods of laboratory supervision.

Suggested courses in physics and chemistry and in geology and physiography have been arranged and can be obtained of the Professor of Education.

DESCRIPTION OF DEPARTMENTS

EDUCATION

See same, in the College of Literature and Arts, page 75.

PHILOSOPHY

The work in this department includes history of philosophy, metaphysics, ethics, and logic. The object of the courses is primarily threefold:

1. To meet the wants of those who desire to specialize.
2. To give those who desire a general knowledge of

these subjects some familiarity with the sphere of philosophical speculation and with the philosophical method as applied to the principles and presuppositions of the various sciences.

3. To show the relation of philosophy to practical life and the value of these studies as means of general culture.

PSYCHOLOGY

The object of this department is twofold. The aim is, first, to acquaint the student experimentally with psychic phenomena and to make him familiar with recent literature and standard authorities; and, second, to make contributions to the science itself.

For the suitable preparation of the student for higher work, he is from the first required to deal with the subject as an experimenter, and thus given a practical knowledge of the phenomena which he is to handle. The laboratory is well equipped with materials and apparatus for the continuation of this work through a large number of classical experiments upon sensation, which the student is required to conduct himself and of which a careful record is kept. The higher mental functions are then studied in a similar way, and the experimenter held responsible for the purity of the experimental conditions and the method of procedure. The history of psychology is also taken up. A full line of periodical literature is made accessible by the University, and this serves as the basis of reports in the seminary. In order to give a comprehensive survey of psychic activities, the genesis of mind with its accompanying development of neural structure is traced from the lower forms of life to its culmination in adult man.

For the accomplishment of the second aim of the department, that of original research, the laboratory is well equipped with suitable apparatus and every incentive is given toward a high grade of work. Investigations not immediately connected with the laboratory are also encouraged.

THE PRELIMINARY MEDICAL GROUP

AIMS

The courses in the preliminary medical group are intended (1) to provide for the student a thorough training in the sciences which form the foundation of medicine, together with such other liberal studies as will give him a well-rounded education, as represented by the bachelor's degree, and (2) to prepare the student for specialization in the sciences allied to medicine. The studies of this group are offered and recommended in two general courses, the "full course" and the "three years' course" preliminary to medicine. The latter contemplates three years work at the University, followed by three years' work at the Medical College. Those completing these six years of work satisfactorily will receive (on graduating from the Medical College) both the medical degree and the liberal degree. They will receive advanced credit for the following courses at the Medical College: chemistry (general, organic, qualitative and quantitative analysis, and toxicology), biology (zoölogy), normal histology, physiology, embryology, and bacteriology. For a full list of the studies in this course, see page 143, of the catalog.

The full course preliminary to medicine has one marked advantage over the three-year course. The great amount of work required in the sciences on which medicine is based renders it impossible to allow much latitude in elecive studies for those who spend only three years at the University. For those who take the full course an excellent group of studies may be selected. In addition to all the advantages of the three-year course, the student has a chance to do specialized work in chemistry, histology, physiology, psychology, bacteriology, or any other of the sciences for which he has a special predilection; and at the same time he may so perfect himself in German and French that he may have command of medical literature in these lan-

guages—which means the medical literature of the world. He will also be in a position to perfect himself so as to study with profit abroad and to attend and participate in the meetings of international medical bodies. In short, he will have a scientific and liberal training which will enable him to compete advantageously for a place in the front rank of his profession, and to maintain the same with honor.

CLASSIFICATION OF SUBJECTS

PRESCRIBED

Art and Design 1a; 1 hour.
Botany 5; 5 hours.
Chemistry 1, 2, 3a, 5a, 9, 9c; 23 hours.
German B or 1, 3, 4, 5 or 6; 20 hours.
Latin.*
Mathematics 4; 2 hours.
Military Science 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 2; 5 hours.
Physiology—
  For three-years' course, 1; 10 hours.
  For full course, 1, 2†; 20 hours.
Psychology 2; 5 hours.
Zoölogy 10, 2, 3†; 15 hours.
Rhetoric 2; 6 hours.

ELECTIVES

In addition to the subjects of the prescribed list, the student may take, subject to the approval of the Dean of his College, any subjects offered by the College of Science or the College of Literature and Arts, sufficient to make up the total number of hours required for graduation in his course.

REQUIREMENTS FOR GRADUATION

In the preliminary medical group students taking the three years' course may graduate as follows: After com-

*Those who offer Latin for entrance must take German in this course; those who offer German for entrance should take its equivalent in Latin before going on with German in the University.

†In exceptional cases zoölogy 3 and physiology 2 may be omitted from the list of prescribed studies on petition to the faculty of the College of Science.

pleting the studies on the prescribed list (page 141), together with a sufficient number of electives to amount to 100 semester hours for his entire course, the student is admitted to the Medical College of the University, in Chicago, and given credit for those studies which are taught both at the Medical College (see page 140) and at the University. This advanced standing enables him to complete his medical studies proper in three years instead of four, making six years for the combined course. At the completion of his medical studies he receives the degree of Bachelor of Science from the University and that of Doctor of Medicine from the Medical College. Those taking the full course preliminary to medicine may graduate from either a specialized or a general course.

A specialized course requires that the student shall have done a total of at least thirty hours' (see page 180) work in the subject in which he specializes, and that ten hours of the thirty shall have been devoted to original work, which shall be the subject of an acceptable thesis. No student may be enrolled in a specialized course without the permission of the head of the department in which he wishes to do his principal work. The thirty hours' work in the principal subject chosen may not all be taken in any two consecutive semesters.

A general course requires the completion of all the prescribed studies of the group, together with sufficient electives to make the total number of "semester hours" (see page 180) one hundred and thirty, and to prevent the number of semester hours for any one semester from falling below fifteen. The elective studies may be chosen from any of the courses offered at the University.

COURSES OF INSTRUCTION

It is urgently recommended that students take the studies of the following prospectuses in the order named. The courses have been arranged with great care to avoid con-

flicts, and any deviation from the order given is likely to lead to irreconcilable conflicts of hours, which may involve the inability of the student to complete the list of prescribed studies in the required time.

FULL COURSE PRELIMINARY TO MEDICINE

First Year

1. Zoölogy 10; Art and Design 16; Elementary Chemistry (Chem. 1); Trigonometry (Mathematics 4); Rhetoric and Themes (Rhet. 2); Military 2; Physical Training for Men 1, 3; for Women 7, 9.

2. Descriptive Inorganic Chemistry (Chem. 2); Qualitative Analysis (Chem. 3a); Physics 2; Rhetoric and Themes (Rhet. 2); Military 1, 2.

Second Year

1. German B or 1 or 4 or Latin*; Zoölogy 2; Quantitative Analysis (Chem. 5a); Military 2.

2. German B or 3 or 5 or 6 or Latin*; Zoölogy 3†; Organic Chemistry (Chem. 9, 9c); Military 2.

Third Year

1. German 4; Psychology 2; Physiology 1; Electives. [French recommended.]

2. German 5 or 6; Physiology 1; Bacteriology (Bot. 5); Electives. [French recommended.]

Fourth Year

1. Physiology 2*; Electives.
2. Physiology 2*; Electives.

THREE YEARS' COURSE PRELIMINARY TO MEDICINE

The three years' course is the same as the first three years of the "Full Course Preliminary to Medicine." (See above.)

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* Those who offer Latin for entrance must take German in this course; those who offer German for entrance should take its equivalent of Latin before going on with German in the University.

† In exceptional cases zoölogy 3 may be omitted as a required study by petition to the faculty of the College of Science.

*In exceptional cases physiology 2 may be omitted as a required study on petition to the faculty of the College of Science.

COLLEGE OF AGRICULTURE

FACULTY

Andrew S. Draper, LL.D., President.
Eugene Davenport, M.Agr., Dean, Animal Husbandry.
Thomas J. Burrill, Ph.D., LL.D., Botany and Horticulture.
Stephen A. Forbes, Ph.D., Zoölogy.
Charles W. Rolfe, M.S., Geology.
Donald McIntosh, V.S., Veterinary Science.
Arthur W. Palmer, Sc.D., Chemistry.
Samuel W. Parr, M.S., Applied Chemistry. (On leave.)
Daniel K. Dodge, Ph.D., English.
David Kinley, Ph.D., Economics. (On leave.)
Albert P. Carman, Sc.D., Physics.
Evarts B. Greene, Ph.D., History.
George T. Kemp, M.D., Ph.D., Physiology.
Jacob K. Shell, M.D., Physical Training.
Lewis A. Rhoades, Ph.D., German.
Thomas A. Clark, B.L., Rhetoric.
George D. Fairfield, A.M., Romanic Languages.
Isabel Bevier, Ph.M., Household Science.
Cyril G. Hopkins, Ph.D., Agronomy.
Edmond G. Fechét, Major U.S.A. (retired), Military.
Violet D. Jayne, A.M., English.
Harry S. Grindley, Sc.D., Chemistry.
Herman S Piatt, Ph.D., French.
Frank Smith, A.M., Zoölogy.
Oscar Quick, A.M., Physics.
Joseph C. Blair, Horticulture.
George H. Meyer, A.M., German.

Matthew B. Hammond, Ph.D., Economics.
Jennette E. Carpenter, O.M., Physical Training.
George A Huff, Jr., Assistant Director of Gymnasium.
Wilber J. Fraser, B.S., Dairying.
Neil C. Brooks, Ph.D., German.
Martha J. Kyle, A.M., Rhetoric.
William A. Adams, A.B., Rhetoric and Public Speaking.
Lucy H. Carson, A.M., English.
William J. Kennedy, B.Agr., Secretary, Animal Husbandry.
John W. Lloyd, B.S.A., Horticulture.
George M. Holferty, M.S., Botany.
Hugh E. Ward, M.S., Soil Physics and Bacteriology.
John H. McClellan, A.M., Zoölogy.
Oscar Erf, B.Agr., B.Sc., Dairying.
Archibald D. Shamel, B.S., Farm Crops.
Justus W. Folsom, S.D., Entomology.
Daisy L. Blaisdell, A.M., German.
Florence N. Jones, A.M., French.
Cornelia E. Simons, Household Science.
Fred R. Crane, B.S., Farm Mechanics.
Albert R. Curtiss, Woodworking.
Henry Jones, Blacksmith.
Hugh J. Graham, A.B., Rhetoric.
Oscar L. Housel, Military.

AIMS AND SCOPE

The College of Agriculture offers to students an education designed to fit them for the business of farming and at the same time to furnish a means of culture. This education is, therefore, partly technical and partly cultural. Its end is the training of students to be not only successful farmers, but good citizens and successful men as well. In other words, it seeks to provide an education suitable to the needs of rural people.

The technical portion of the courses offered in the College

of Agriculture constitutes about one-half of the entire work of the student. In studying these technical subjects the aim is not so much to teach rules of practice as to make plain the principles of agricultural science. Of the remaining portion of the course, twenty-five semester hours are prescribed in the sciences. Since the technical subjects are also of a scientific character, the course as a whole is essentially scientific, rather than literary; yet the College is mindful of the educational importance of history, literature, language, and the political sciences, and reasonable attention is, therefore, given to these subjects and their pursuit is encouraged by a liberal amount of open electives.

The College also offers, through the department of Household Science, a variety of courses, especially treating of the affairs of the home.

METHODS OF INSTRUCTION

Of the twelve instructors in technical subjects, eleven devote their entire time to agriculture. Instruction is by laboratory work supplemented by text-books, lectures, and reference readings which are almost constantly assigned from standard volumes and periodicals. The student is brought into close practical contact with his subject. He takes levels, lays tile, tests the draft of tools, traces root systems of corn and other crops, tests germination of seeds, determines the fertility in soils and the effects of different crops and of different rotations upon soil fertility. He does budding, grafting, trimming, and spraying, and works out problems in landscape gardening. He tests milk, operates separators, makes and judges butter and cheese. He studies cuts of meat and samples of wool, judges a great variety of animals, and has practice in diagnosing and treating their diseases.

EQUIPMENT

The College keeps on deposit from the largest manufacturers thousands of dollars worth of plows, cultivators, planters, cutters, shellers, grinders, mowers, binders, engines, etc.

It has extensive collections of agricultural plants and seeds and their products. Laboratories are well equipped with apparatus and appliances for the study of manures, fertilizers, fertility of soils, soil physics, soil bacteriology, germination of seeds, corn judging, etc. The grounds of the University and the fields and orchards of the Experiment Station are always available for illustration in class work. An illustrative series of colored casts of fruit and enlarged models of fruits and flowers, collections of seeds and woods, cabinets of beneficial and noxious insects with specimens of their work, photographs, maps, charts, drawings, lantern slides,—all afford valuable material for study and illustration.

Specimens of Morgan horses; Shorthorn, Jersey, Ayrshire, and Holstein-Friesian cattle; Shropshire, Merino, and Dorset sheep, and Berkshire swine afford material for judging, which, however, is vastly increased by loans from prominent herds. In the dairy department is a complete outfit for a milk-testing laboratory and for cream separation and butter and cheese making. The department of veterinary science owns a collection illustrating materia medica, a collection of pathological specimens illustrating special abnormal bony development, and a *papier-maché* model of a horse, capable of dissection, and showing every important detail of structure. In addition are levels, lanterns, microscopes, and cameras, an extensive list of agricultural journals, a complete file of experiment station bulletins from all the states, and an excellent assortment of standard reference books, including nearly all the pedigree registers published.

DESCRIPTION OF DEPARTMENTS

DEPARTMENT OF AGRONOMY

The Department of Agronomy, with four teachers, gives instruction in those subjects that relate especially to the field and its affairs, as drainage, farm machinery, field crops, the physics and bacteriology of the soil, manures, rotation and

fertility, the history of agriculture, farm management and comparative agriculture. The object is to acquaint the student with the facts and principles connected with the improvement of soils, the preservation of fertility, the nature of the various crops, and the conditions governing their successful and economic production and with the development of agriculture. This object is attained by the application of the laboratory methods of study to these subjects, supplemented by lectures, class room work, and a free use of standard literature.

ANIMAL HUSBANDRY

In this department two instructors give courses covering the separate study of sheep, swine, beef, and dairy cattle and their products, heavy and light horses with their care and training, the management of farm herds, and the principles and practices of feeding and of breeding. The object is to familiarize the student with animals, first as to their fitness for specific purposes; second, as to their care and management; third, as to their improvement by breeding; and fourth, as to the commercial production of animal products. This familiarity is gained by an exhaustive study of the uses of domestic animals; the history and character of their breeds, together with extensive practice in stock judging, supplemented by a careful study of the methods of successful stockmen and of the known principles of feeding and of organic evolution.

DAIRY HUSBANDRY

Two instructors give extended courses in the study of milk and its economic production; the characteristics of the dairy cow and the management of dairy farms; the separation of cream, and the making of butter and cheese; factory management; dairy bacteriology; city milk supply and the standardizing and pasteurizing of milk and cream.

HORTICULTURE

Three instructors conduct courses in orchard management, small fruit culture and vegetable gardening; in nut

culture, floriculture, landscape gardening, and forestry; in fruit propagation, greenhouse management, and the evolution of cultivated plants; and in commercial horticulture and nursery management. The purpose is to acquaint the student with the principles and practices of fruit raising and vegetable gardening, both for home and market, and with successful methods of combating insect and fungous enemies. The sense of the beautiful is cultivated and given expression in floriculture and landscape gardening to the end that more of nature's beauty shall pervade the home and its surroundings. The student studies plant life, how to propagate, cultivate, and improve the forms that have been found useful or ornamental in the way of vegetables, fruits, flowers, and trees. As in other departments, he follows the methods of the laboratory in that he learns to do by doing, supplementing everything by numerous references to standard literature.

HOUSEHOLD SCIENCE

The department of household science stands in educational training for a recognition of the home, because of the belief that that which bears so large a part in the development of the individual and in national life should be considered and its interests conserved.

It aims to provide a place and an opportunity for a scientific study of some of the problems of housekeeping and home-making, together with the management of the house and the distribution of the income according to recognized business principles.

The courses of instruction given in the department are planned to meet the needs of two classes of students, viz.; (a) those students who specialize in other lines of work, but who desire a knowledge of the general principles and facts of household science. (b) Those students who wish to make a specialty of household science by a comprehensive study of the affairs of the home, together with the arts and sciences whose applications are directly connected with the management and care of the home.

The needs of class (a) are provided for in household science courses 1, 2, 3, and 5. (See description of courses.)

Provision is made for class (b) by the Household Science Group, as described page 126.

The department occupies the entire second floor of the north wing of the agricultural building and is supplied with laboratories, apparatus, and illustrative material, such as charts, specimens of various kinds of building material, and exhibits illustrating the chemical composition and products obtained in the manufacture of certain foods.

The students have access also to the museum of the architectural department, as well as the benefit of close association with the art department.

VETERINARY SCIENCE

Courses are offered in veterinary anatomy and physiology, materia medica, theory and practice of veterinary medicine and surgery, and veterinary sanitary science. The object is to acquaint the student with the structure and activities of the animal in health, the characteristic symptoms of disease and the materials and methods of successful treatment. He therefore makes careful study of the structure of domestic animals, of the nature of their derangements and the characteristic action of remedial agents, and the weekly clinic gives opportunity for practical experience in the diagnosis and treatment of the more ordinary diseases.

CLASSIFICATION OF SUBJECTS

PRESCRIBED*

Agronomy 2, 6, 9, 12; 15 hours.
Animal Husbandry 7, 8; 7½ hours.
Chemistry 1, 3b, 4, 13; 15 hours.
Dairy Husbandry 10; 2½ hours.
Economics 2; 2 hours.
Horticulture 1, 10; 8 hours.
Military 1, 2; 5 hours.

*See note referring to students specializing in household science given under "Requirements for Graduation."

Physical Training 1, 3, or 7, 9; 3 hours.
Physics 1, 3; 4½ hours.
Rhetoric 2; 6 hours.

ELECTIVE

List A

Botany 1 to 8; 42 hours.
Zoölogy 1 to 7; 35 hours.

List B

English 1, 16; 3 to 8 hours.
Rhetoric 3; 5 to 10 hours.

List C

Agronomy 1; 3 to 5; 7, 8, 10, 11, 13 to 18; 1 to 60½ hours.
Animal Husbandry 1 to 6, 9; 2 to 28 hours.
Dairy Husbandry 1 to 9, 11, 12; 2½ to 40 hours.
Horticulture 2 to 9, 11 to 19; 2 to 72 hours.
Veterinary Science 1 to 4; 2 to 25 hours.

REQUIREMENTS FOR GRADUATION

Students will be graduated from the College of Agriculture with the degree of bachelor of science upon completing the following work:

1. The studies of the prescribed list.

2. Sufficient electives to make a final total of 130 semester hours, of which ten shall be chosen from elective List A, not less than three from elective List B, not less than twenty-five from elective List C, and the remainder from any subjects offered in the University (p. 180), which the student is prepared to take.

3. An acceptable thesis upon an approved course of investigation, for which from five to ten semester hours will be allowed, according to the nature of the subject. Credit for this will be included in the amount to be earned by elective work.

Students specializing in household science may substitute courses in that department in place of courses prescribed in agronomy, animal husbandry, dairy husbandry, and horticulture, and may elect sufficient additional subjects

for graduation from any subjects taught in the University, subject to the approval of the Dean of this College.

COURSE OF INSTRUCTION

Required for the degree of B. S. in Agriculture

The following outline shows the most favorable time and order in which the prescribed studies of the course can be taken, and, though it is not insisted that the scheme be followed, it is strongly recommended.

FIRST YEAR

1. Chemistry 1; Horticulture 1; Military 1, 2; Physical Training 1, 3 or 7, 9; Rhetoric 2; Elective in Agriculture.
2. Agronomy 2, 6; Chemistry 3b, 4; Military 2; Physical Training 1 or 7; Rhetoric 2; Elective in Agriculture.

SECOND YEAR

1. Chemistry 13; Physics 1 and 3 (first semester); electives.
2. Animal Husbandry 7; Dairy Husbandry 10; Rhetoric 3, or English 1, or English 16; Botany, if elected; Electives.

THIRD YEAR

1. Agronomy 9; Botany or Zoölogy; Electives.
2. Agronomy 12; Zoölogy if elected; Horticulture 10; Electives.

FOURTH YEAR

1. Animal Husbandry 8; Electives.
2. Economics 2; Electives.

Should the student elect five or more hours in dairy husbandry, the prescribed minor in that subject will not be exacted. Note that a total of ten hours in either botany or zoölogy is required.

GRADUATE SCHOOL

ORGANIZATION

The Council of Administration of the University is in charge of the Graduate School, and the executive officer, to whom communications should be addressed, is the Dean of the Graduate School.

ADMISSION AND REGISTRATION

Graduates of the University of Illinois, and of other colleges and universities of approved standing, may be admitted to membership in the Graduate School upon presentation of their credentials. Other persons suitably qualified may gain admission by special vote of the Council of Administration upon such conditions as may be imposed in each case. Candidates for admission may secure application blanks from the Dean or the Registrar of the University, and these, properly filled out, should be filed, together with such documentary matter as may be presented, showing qualifications for membership in the school, with the former officer. This should be done not later than the time set for registration in September. Admission may be granted at other times, but the time limit required for degrees counts from the date of the certificate of membership.

With the exceptions named below, all members of the Graduate School are required to be in regular attendance at the University, and to do all the work for which they are registered in the departments to which such work belongs. In case of absence on leave, or when absence is necessary to carry on investigations included in approved courses of study, the requirement of continuous residence may be modified by the Council of Administration.

Graduates of this University may be admitted to non-resident membership in the Graduate School, as candidates for second or masters' degrees; and all members of the

School who have completed the residence period required for advanced degrees may register as non-residents while completing the work required for such degrees.

Members of the Graduate School register with the Dean during the registration period of each semester. This in the case of non-residents may be done by letter, stating the work to be undertaken during the ensuing half-year.

STUDIES AND EXAMINATIONS

As far as can be indicated by a statement of time, full work for a graduate student consists in the use of forty-five hours a week in the lecture rooms, laboratories, etc., and in private study. Assignments of work are made upon this basis; but great variations naturally result from the subject-matter in hand, and from the abilities of individuals. Each student must select one principal line of study, called his major subject, and upon this major subject at least one-half of his work must be done; and any greater proportion of his time, up to the whole of it, may be thus devoted if proper approval is had. When work upon the selected major subject is not arranged to require all of the student's attention, he must choose one or two minor subjects, as may be necessary to complete a full course of study. Usually, at least one minor subject should be taken. Not more than two may be taken at the same time.

The major study must be approved as graduate work for this University. The minor subjects may, under approval, be chosen from the offerings to graduates, or, except in the College of Engineering, from undergraduate courses exclusive of those usually open to freshmen. But all candidates for advanced degrees must direct their selection toward some well-defined end, determined for the most part by the character and purpose of the major study.

In architectural and engineering subjects, at least the major line of study, and not less than two-thirds of the entire work, must be taken from lists marked "primary,"* and

*See the courses for graduates in architecture and other engineering courses, in the "General Description of Courses," p. 180.

any remaining amount to complete a full course may be taken from those designated "secondary," under the same general head with the primary list.

All courses of study leading to degrees in the Graduate School are subject to approval, first, by the head of the department of the University in which the major subject for each student belongs; second, by the Dean of the College including such department; and, third, by the Dean of the General Faculty. The signatures of the heads of departments in which chosen minor subjects belong must also be obtained before the list reaches the Dean of the General Faculty. The lists of studies, as finally approved, are deposited with the Registrar of the University. No changes may subsequently be made except under the same line of approvals, but extension of time may be arranged with the professors concerned and with the Dean of the General Faculty.

Examinations are required in all subjects, and reports upon these are made to the Registrar of the University. Graduate students in undergraduate classes are examined with these classes.

The head of the department in which the student does his major work is charged with the direction and supervision of such major work, and, in a general way, with the supervision of the student's entire course of study. He fixes the time and method of all examinations not otherwise provided for, sees that they are properly conducted, and reports results to the Registrar. It is his duty also to keep the Dean of the General Faculty informed concerning all matters affecting the interests of the student, and of the School in connection therewith.

DEGREES AND FELLOWSHIPS

A full statement regarding the degrees conferred by the University may be found on later pages of this catalog, and in the same connection an account of fellowships. (See pp. 279 and 283.)

STATE LIBRARY SCHOOL

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.
KATHARINE L. SHARP, PH.M., B.L.S., DIRECTOR, Library Economy.
ISADORE G. MUDGE, PH.B., B.L.S., Reference.
MARGARET MANN, Library Economy.
GRACE O. EDWARDS, B.S., B.L.S., Cataloging.
CECILIA B. MCCONNEL, Library Economy.
EMMA R. JUTTON, B.L.S., Library Economy.

AIMS AND SCOPE

The *Library School,* which had been conducted at Armour Institute of Technology, Chicago, since September, 1893, was transferred to the University of Illinois in September, 1897.

The scope of the work of the School has been broadened since the time of the transfer. There is now offered a four years' course of study, leading to the degree of bachelor of library science. Two years of the course are devoted to general university studies, and this is the smallest preparation which will be accepted for entrance upon the technical work. Students are encouraged to complete a four years' college course before applying for admission. This high standard is necessary because conditions in library work are rapidly changing. It is not enough to have a knowledge of books, nor is it enough to have a knowledge of methods. One or two years of training will not take the place of years of experience, but they will make the student more adaptable and general library service more intelligent.

Instruction is given in each department of library administration. Stress is laid upon simplicity and economy, although elaborate methods are taught to enable students to work in large libraries where bibliographic exactness is required. The higher side of library work is emphasized throughout the course, and students are taught their responsibility to the schools, to the clubs, and to the people as organized bodies and as individuals.

It is the purpose of the University to graduate librarians who are not only trained, but educated; librarians who are not only equipped in technical details, but filled with an appreciation of their high calling to furnish "the best reading to the greatest number at the least cost."

METHODS OF INSTRUCTION

There are so few text-books on library economy that instruction is given almost altogether by lecture and laboratory methods. References to books and periodicals are given for collateral reading, and individual research is encouraged from the start. Lectures are illustrated by the collections of forms and fittings, and each student is expected to do a certain amount of practical work in the University library each day. Before completing the course, each student must have had actual experience in every department of the library. Class room work is tested by problems, and examinations take the form of problems wherever practicable.

PUBLIC DOCUMENTS

This is the only Library School which gives an extended course on the use and cataloging of public documents. This knowledge is necessary in small as well as large libraries, in public as well as college libraries.

LOCAL LIBRARY COÖPERATION

The Library of the University of Illinois and the Champaign Public Library have systematic plans for coöperation through the Library School, in the interests of the clubs

and the schools. Each woman's club in Champaign and Urbana sends its program for the year to the Library School, where a reference list is made on each subject, specifying in which library the material is to be found. A copy of each list is posted in each library. The students also make lists for the various grades of the public schools. The branch of the Champaign Public Library is entirely in charge of Library School seniors. Seniors also spend a definite time in the children's room of the Champaign Public Library, where they develop their own ideas as to advertising methods, picture bulletins, decoration, reading lists, etc. Each student gives a talk to the children upon some timely topic, and invitations to these talks are posted in the schools. All special holidays are observed by bulletins and reading lists, and birthdays of distinguished people are called to the children's attention.

EQUIPMENT

The most valuable equipment is the working library of the University.

The Library School has the complete collection of manuscript notes and problems which have been prepared since the School opened in 1893. As text-books are so few, this collection is invaluable. A collection of library reports and catalogs and of mounted samples, showing methods of administration in all departments, is carefully classified and is continually increasing. A collection of card catalogs of various forms has been made, including the book forms from Leyden, Holland; Cassel, Germany; and Florence, Italy; and the modern forms approved by the American Library Association. Other forms are represented by photographs.

The School has a collection of printed blanks and forms illustrating methods of administration in different types of libraries, many labor-saving devices, and samples of fittings for all departments. The School received much material from the World's Columbian Exposition in 1893, and is con-

stantly receiving additions from librarians and manufacturers throughout the country.

A collection of cataloging rules and of classification systems is making for comparative study. A number of devices and patents, such as temporary binders, pamphlet cases, newspaper files, etc., have been contributed by inventors and manufacturers.

REQUIREMENTS FOR GRADUATION

Credit for 65 hours, including the prescribed military and physical training, in addition to two years' prescribed technical library work, is required for graduation. The technical work is of junior and senior grade, and must be taken at the University, but the work of the first two years covers general university studies and may be taken at any college from which credits are accepted.

COURSE OF INSTRUCTION

Required for the degree of B.L.S.

The work of the first two years may consist of any of the courses offered in the University, the requirements for which students can meet.

THIRD YEAR

1. Elementary Library Economy (Lib. 1); Elementary Reference (Lib. 2); Selection of Books (Lib. 3); Elementary Apprentice Work (Lib. 4).

2. Elementary Library Economy (Lib. 1); Elementary Reference (Lib. 2); Selection of Books (Lib. 3); Elementary Apprentice Work (Lib. 4).

FOURTH YEAR

1. Selection of Books (Lib. 3); Advanced Library Economy (Lib. 5); Public Documents (Lib. 6); Bibliography (Lib. 7); History of Libraries (Lib. 8); Advanced Apprentice Work (Lib. 11); Thesis (Lib. 12).

2. Selection of Books (Lib. 3); Advanced Library Economy (Lib. 5); Bibliography (Lib. 7); Advanced Reference (Lib. 9); Book-making (Lib. 10); Advanced Apprentice Work (Lib. 11); Thesis (Lib. 12).

SCHOOL OF MUSIC

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.

WALTER HOWE JONES, DIRECTOR, Piano.

ALISON MARION FERNIE, R.A.M. (London), P.A.M. (Philadelphia), Voice.

HENRY CARL SCHELD, Violin.

JESSIE YOUNGE FOX, Piano.

EMMA QUINBY FULLER, Voice.

FACULTY

The School of Music offers courses leading to the degree of bachelor of music.

The courses are widely varied. Although regular courses are laid out, students may spend an indefinite amount of time in the study of an instrument or of the voice.

The course in the history of music, as well as the work in the University Orchestra and the University Choral Society, may be taken by regular students in other departments.

A course of artists' concerts is given each season under the management of the University Choral Society. In these concerts, to which an admission fee is charged, only artists of the best reputation appear.

The instructors in the School of Music give recitals and lectures on musical subjects during the year.

REQUIREMENTS FOR GRADUATION

Credit for 130 semester hours, including military and physical training credit, together with an acceptable thesis, is required for graduation with the degree of bachelor of

music. The thesis required for graduation must be on a topic related to music.

Students who are not working for a degree in music may receive a certificate of work done by complying with the following conditions:

Students of the piano, organ, or violin must complete the entire course specified for these instruments; must also complete the work offered in harmony, covering thirteen hours, and must take one year's work (ten hours) in either German or French.

Students of the voice must complete the entire course offered in vocal work, the thirteen hours' work in harmony and two years' work on the piano, besides taking one year (ten hours) of German or French, and one year (four hours) of Italian.

Special and preparatory music students are required, in addition to their practical work in music, to pursue other lines of study sufficient to fill in their spare time.

Students enrolled in the department of music only pay no semester fees, but must pay the music fees. (See p. 297.)

CLASSIFICATION OF SUBJECTS.

PRESCRIBED

Music 1; 2 hours (see page 181).
Music 2a; 13 hours.
Music 2b; 3 hours.
Music 2c; 3 hours.
Music 2d; 3 hours.
Music 3b, 4b, 5b or 6b; 56 hours.
French or German; 10 hours.
Italian 1; 4 hours.
Mathematics 4; 2 hours.
Military 1, 2; 5 hours.
Physical Training—
  Men, 1, 3; 2½ hours.
  Women, 7, 9; 3 hours.
Physics 2; 5 hours.
Rhetoric 1; 6 hours.

The remaining hours of credit may be obtained in electives, offered in the College of Literature and Arts, choice of subjects being left to individual students.

MUSICAL ORGANIZATIONS

The University Glee Club is an organization for men. Membership is decided by competition and is limited to sixteen in number. The club meets twice a week for rehearsal.

The Ladies' Glee Club is an organization for the young ladies of the University, and is in charge of the head of the vocal department.

The Mandolin and Guitar Club is open to young men who play these instruments. Membership is decided by competition, and the club is associated with the Glee Club in its concerts.

The Military Band is conducted by the director of the School of Music. It furnishes music for important University occasions and appears at regimental drill of the military department, besides giving several concerts during the year. Membership is limited to thirty in number and is decided by examination.

The University Orchestra meets for a two hours' rehearsal once a week, and is open to all students who play any orchestral instrument ordinarily well.

The University Choral Society is conducted by the head of the vocal department of the School of Music, and meets once a week for rehearsal of choral works. Students, also singers not connected with the University, are admitted to membership on the payment of a small fee.

COLLEGE OF LAW

FACULTY

ANDREW S. DRAPER, LL.D., PRESIDENT.

JAMES B. SCOTT, A.M., J.U.D., DEAN, Constitutional and International Law, Equity, and Real Property.

CHARLES C. PICKETT, A.B., LL.B., Contracts, Sales, and Carriers.

WILLIAM L. DREW, B.S., LL.B., Torts, Agency, Common Law Pleading.

THOMAS W. HUGHES, LL.M., Evidence, Bills and Notes, Corporations.

CHARLES W. TOOKE, A.M., LL.B., Domestic Relations, Damages, and Wills.

LECTURERS

HON. OLIVER A. HARKER, Judge of the Appellate Court of the State of Illinois, Lecturer on Criminal Law.

HON. BENJAMIN R. BURROUGHS, Judge of the Appellate Court of the State of Illinois, Lecturer on the Law of Real Property.

HON. FRANCIS M. WRIGHT, Judge of the Appellate Court of the State of Illinois, Lecturer on the Law of Easements.

HON. CALVIN C. STALEY, County Judge of Champaign County, Lecturer on Probate Law and Administration of Estates.

HON. ORRIN N. CARTER, County Judge of Cook County, Lecturer on Election Laws and Revenue Law of the State of Illinois.

Special courses of lectures will also be given by other gentlemen.

REQUIREMENTS FOR ADMISSION

1. All applicants for admission to the College of Law must be at least 18 years of age and of unquestioned character.

2. Graduates of colleges and of scientific schools of approved standing are admitted upon diploma or certificate without examination.

3. Graduates from any approved high school in the state are admitted in the same way.

In the absence of proper certificates the usual examination as for admission to the freshman class of the University (p. 48) will be required.

ADVANCED STANDING

The following persons will be admitted to advanced standing:

1. Persons who produce from another law school, in good standing, certificates of having satisfactorily pursued courses in law, included in the following schedule, and of having received credit therein, *provided* that the time spent on such courses is equivalent to the time spent on the same courses in this school. Otherwise, an examination on such courses, given by the instructors in this College, must be satisfactorily passed.

2. Persons who have studied law privately or in an attorney's office, and who pass examinations prescribed by the faculty of the College.

3. Members of the bar of this state, who will be admitted to the third year class without examination as candidates for the degree of LL.B.

SPECIAL STUDENTS

Students who do not desire to be candidates for a degree may take one or more courses as special students upon approval of the faculty of the College under regulations to be prescribed for the University (p. 57). Such students will

receive credit for work satisfactorily done, and may become candidates for graduation at any time by meeting the requirements of the College.

METHODS OF INSTRUCTION

The methods of instruction used in this College are based upon the study of cases. Text-books are used to some extent, and lectures are occasionally resorted to, but the study of the case is regarded as the chief means to the attainment of legal knowledge and proficiency.

LIBRARY AND MOOT COURT

The library consists of the leading text-books on all subjects: Supreme and Appellate Court Reports of Illinois; United States Supreme Court Reports; New York, Ohio, Massachusetts, Iowa, Wisconsin, Michigan, and Indiana Reports; American Decisions, American Reports, and American State Reports; the current volumes of the West Company Reporter System, and the leading legal periodicals. Additions of reports and text-books will be made during the coming year.

The Moot Court is held once a week for the purpose of familiarizing the student with legal procedure. It is presided over by Judge Harker, the other officers being elected by the law students from their own body. All second and third year students are required to be present and to perform such duties as may be assigned them.

LEGAL STUDY AND UNIVERSITY WORK

The Council of Administration will, upon application, in proper cases, apply credits earned in the College of Law upon other University courses.

Students matriculating in the College of Law may take any of the following courses in the College of Literature and Arts, subject to the approval of the Dean of the College of Law and of the Dean of the College of Literature and Arts: public law and administration; economics and social science,

and history. By special arrangement other work in the College of Literature and Arts may also be taken.

COURSE OF INSTRUCTION

Required for the Degree of LL.B.

FIRST YEAR

1. Contracts (Law 1); Torts (Law 2); Real Property (Law 3); Common Law Pleading (Law 4); Criminal Law (Law 5); Personal Property (Law 6).

2. Contracts (Law 1); Torts (Law 2); Real Property (Law 3); Common Law Pleading (Law 4); Domestic Relations (Law 7).

SECOND YEAR

1. Evidence (Law 8); Sales (Law 9); Real Property (Law 10); Agency (Law 11); Equity (Law 12); Damages (Law 13).

2. Evidence (Law 8); Real Property (Law 10); Equity (Law 12); Bailments and Carriers (Law 14); Bills and Notes (Law 15).

THIRD YEAR

1. Trusts (Law 16); Corporations (Law 17); Wills and Administration (Law 18); Partnership (Law 19); Constitutional Law (Law 22); International Law (Law 23); Practical Conveyancing (Law 25); Moot Court (Law 26).

2. Corporations (Law 17); Equity Pleading (Law 20); Suretyship and Mortgage (Law 21); Constitutional Law (Law 22); International Law (Law 23); Municipal Corporations (Law 24); Practical Conveyancing (Law 25); Moot Court (Law 26).

REQUIREMENTS FOR GRADUATION

The requirements for graduation with the degree of bachelor of laws are seventy-eight semester hours of work. A "semester hour," as here used, means one hour per week of class room work for one-half of a year. The degree will be conferred upon the completion of the course set forth above.

ADMISSION TO THE BAR

Under the rules of the Supreme Court of Illinois, candidates for admission to the bar of this state must have had a high school education or its equivalent, must have completed a three years' course of study in a law school or law office, and must then pass an examination to be given by the State Board of Bar Examiners.

THE COLLEGE OF MEDICINE

(For Faculty of the College of Medicine, see page 17.)

HISTORY

The College of Medicine, the College of Physicians and Surgeons, is located on the corner of Harrison and Honore Streets, Chicago, in the heart of the medical quarter of the city. It was founded in the year 1882 by a number of representative physicians and surgeons. In 1892 the College had a thorough reorganization, and erected a commodious laboratory building, the first building exclusively for laboratory purposes erected by any medical school in the West. Since that time it has grown with steadiness and rapidity. The attendance in 1895-96 was 235; in 1896-97, 308; in 1897-98, 408; in 1898-99, 514, 35 of the students being women; in 1899-1900 was 579, 43 being women, and in 1900-1901, over 670. It became the Medical Department of the University in April, 1897.

Chicago is already the center of medical study in the United States. Since the winter of 1897-98 it has contained a larger number of medical students than any other city in the western hemisphere. These students are distributed among fourteen medical colleges, of which the College of Physicians and Surgeons is the second, as to the size of its classes, and is not outranked by any in respect to its facilities, or the scope and thoroughness of its curriculum, or in regard to the place it occupies in the esteem of the medical profession.

SESSIONS

Since the first of October, 1900, the work of the College has been continuous. The collegiate year is divided into

three terms of four months each, beginning as nearly as possible the first of October, the first of February, and the first of June. Each term is of sixteen weeks' duration and offers the same amount of work. Attendance upon two terms, that is eight months, of instruction will constitute a year's work.

REQUIREMENTS FOR ADMISSION, SESSION OF 1901-1902

First, a certificate of good moral character from two reputable physicians.

Second, a diploma of an accredited high school or academy of the University of Illinois, or of a similarly accredited school of another university, whose entrance requirements are equivalent to the entrance requirements of the University of Illinois.

Or, third, entrance examination covering the following subjects:

1. Algebra.—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of exponents, and the analysis and solution of problems involving these.

2. Composition and Rhetoric.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of Rhetoric. The candidate will be required to write two paragraphs of about one hundred and fifty words each to test his ability to use the English language.

3. English Literature.—(a) Each candidate is expected to have read certain assigned literary masterpieces, and will be subjected to such an examination as will determine whether or not he has done so. The books assigned for the next year are as follows:

George Eliot's Silas Marner; Pope's Iliad, Books I., VI., XXII., and XXIV.; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; Cooper's Last of the Mohicans; Tennyson's Princess; Shakspere's The Merchant of Venice; Scott's Ivanhoe; Shakspere's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison.

(b) In addition to the above, the candidate will be required to present a brief outline of American Literature. Hawthorne and Lemmon's Outline of American Literature, or an equivalent.

4. Latin.—Such knowledge of inflections and syntax as is given in any good preparatory Latin book, together with the ability to read simple fables and stories; also four books of Cæsar's Gallic War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

5. Geometry.—Plane Geometry, as given in Wells's or Wentworth's Geometry, or an equivalent.

6. History.—At least one year in one of the following subjects: (a) The History of England and of the United States; (b) General History; (c) The History of Greece and Rome.

7. Physics.—The elements of physical science as presented in such text-books as Appleton's School Physics, or Avery's Elements of Natural Philosophy, or Carhart and Chute's Elements of Physics, or Gage's Elements of Physics.

The entrance examinations are conducted in writing by a committee outside of the Faculty of the College of Medicine appointed by the President of the University, and are held at the medical college at 10 a. m. on the week day next preceding the opening of each term.

ADVANCED STANDING*

Students who have completed a "medical preparatory course," equivalent to that given by the University of Illinois, and graduates of reputable schools of pharmacy, veterinary science, or dental surgery, *whose course extends over two years,* may enter the sophomore class and complete their studies upon three years of attendance, provided they fulfill all other requirements for admission and graduation. *Students thus advanced may not complain of any conflict of hours, nor absent themselves from any part of the lower conflicting course;* but they may make up deficiencies in the work of the winter session during the spring course in such branches as are represented in that course.

*For Combined Undergraduate and Medical course of six years, leading to the degree of B.S. and M.D., see p 140.

COURSE OF STUDY*

The curriculum required for graduation extends over four years. During the first two years the work is confined to the sciences fundamental to practical medicine. During the freshman year this consists of work in histology, biology, embryology, chemistry, human anatomy, physiology, and materia medica. During the sophomore year the study of physiology, chemistry, and human anatomy is continued, and in addition the student takes up pathology, bacteriology, and therapeutics. With the junior year the study of the practical branches of medicine is begun. The entire subjects of medicine, surgery, and obstetrics are covered in recitation courses. The student also begins clinical and bedside work and receives instruction in medical and surgical specialties. More advanced work along the same lines is continued in the senior year. Medicine, surgery, and obstetrics are gone over again, this time in lecture courses and with greater minuteness of detail and profuseness of illustration. The various special departments of medicine and surgery are presented with like thoroughness, and a large part of the student's time is given to clinical study.

METHOD OF INSTRUCTION

During the first two years the time of the students is about equally divided between laboratory and didactic work. The plan of instruction in the College contemplates the freest use of laboratory teaching. Wherever possible practical laboratory work is made to supplement didactic teaching. Students are taught not only by prepared specimens, but they are required to prepare their own specimens from the original material, and are thus made familiar with technical methods, so that they become able independently to carry a technical investigation through all of its stages. During the junior and senior years the time is about equally divided

*For Combined Undergraduate and Medical course of six years, leading to the degree of B.S. and M.D., see p. 140.

between clinical and didactic work, with, perhaps, a preponderance of clinical instruction in the senior year. This clinical instruction is carried on, as far as possible, with the student at the patient's side. Attendance upon clinics is required in the same way as upon lectures, and the students are graded upon, and given credit for, their work in the clinical courses just as they are for the work in the didactic and laboratory courses. The students of the junior and senior years are divided into classes for dispensary and bedside work, and these classes have instruction in rotation in the various departments of practical medicine and surgery.

EQUIPMENT

The college building is a six-story structure on the corner of two wide streets, with an open space around it on all sides. It is provided with all modern conveniences. It contains three well-lighted and well-ventilated amphitheaters, the smallest of which seats two hundred students. In these amphitheaters the usual lectures are given. Adjacent to the college building on the west is the laboratory building. The laboratories contained therein are among the largest and most complete possessed by any medical college in the United States. They occupy four floors, three of them 25x100 feet each, and one 25x56 feet. Each will accommodate one hundred and twenty students at a time. They are provided with desks and lockers for students' use, and are well adapted to the work for which they are severally intended. Adjoining the laboratories are preparation rooms for the use of demonstrators and professors. There is a bone room, to which students have free access for the study of osteology. In the department of pathology the collections furnish ample material for the macroscopical as well as the microscopical study of diseased tissues. The store rooms are connected with all the laboratories by means of an elevator. The College has for the use of students a large number of modern microscopes of late continental and American patterns, a sufficient

number of which are equipped with oil emersion lenses. There are also an ample number of microtomes for students' use, besides microtomes of special construction for particular kinds of work, electric projection apparatus of latest design, and all other apparatus in any way necessary for students' work or for the illustration of lectures. The College has recently purchased the West Division High School property which is adjacent to the present buildings. This property occupies half of the block, is bounded on three sides by streets and on the side next to the present college buildings by a narrow alley. The building upon this property is a very fine modern brick and stone school building, excellently adapted to the needs of a medical school. This addition more than trebles the room at the disposal of the college and gives it a group of buildings for a medical school that is unsurpassed.

FREE DISPENSARY

The dispensary occupies part of the first and second floors of the main building. Connected with the reception room are fourteen clinic rooms for the accommodation of the various specialties in medicine and surgery. During the past five years there have been treated in these rooms an average of twenty thousand patients each year.

HOSPITAL FACILITIES

Members of the faculty and other friends of the College purchased, a few years ago, the adjoining building of the Post-Graduate Medical School and converted it into a hospital of 125 beds. It is a large, handsome structure, 50x100 feet, five stories high, of modern construction, and completely furnished. It is connected with the college amphitheater by a corridor and its clinical resources are thus made easily available for the instruction of students. An entire floor of this hospital is reserved as a ward for patients who are maintained by the College for the instruction exclusively of its students. It is designed to increase these hospital re-

sources as necessity indicates. Directly opposite the College is Cook County Hospital, the only free hospital in Chicago. It contains constantly almost a thousand patients, and supplies a quantity and variety of clinical material which no private institution can command. In the amphitheater of the hospital much of the clinical instruction of the College is given and its wards furnish most of the bedside instruction. In addition to the foregoing resources members of the faculty are connected with various other hospitals of the city and freely draw upon them for the benefit of students.

REQUIREMENTS FOR GRADUATION

First, a certificate of good moral character by two reputable physicians.

Second, satisfactory deportment during attendance at college.

Third, satisfactory evidence that the candidate is twenty-one years of age.

Fourth, proof that the candidate has attended at least four full courses of instruction in four separate years, the last of which shall have been in this institution.

Fifth, certificate that the candidate has pursued the study of practical anatomy during two years and to the extent of having dissected at least the lateral half of the human body.

Sixth, certificate that the candidate has attended two full courses of dispensary and hospital clinics.

Seventh, payment of all the college fees in full.

LIBRARY

The College has for several years had a reference library of several hundred volumes. This library owes its foundation to the gift to the College of the collection of books of the late Prof. A. Reeves Jackson. It has been added to largely from time to time by contributions from members of the faculty and other friends of the College. Its usefulness has recently been greatly augmented by gifts from

the Dean of the Faculty, in consideration of which, and of provision made for its permanent maintenance and growth, it has been named by the faculty the Quine Library. It already contains practically every book of reference required by medical students, and the important medical periodicals. In point of size and completeness it is the second medical library in Chicago, the Newberry Library being the first, and in attendance of readers it is the first. It is in charge of a trained librarian, and is open daily from nine to five for the use of students.

SCHOOL OF DENTISTRY

The College of Medicine will open a School of Dentistry October 1, 1901. Particulars with regard to this school will be given in the Announcement of the College of Medicine for the year 1901.

More detailed information concerning the College may be obtained by application to the Registrar of the University, Urbana, Ill., or to the Secretary of the College of Medicine, Dr. William Allen Pusey, 103 State Street, Chicago.

THE SCHOOL OF PHARMACY

(For Faculty of School of Pharmacy, see p. 23.)

HISTORY.

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany Mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College, from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a

building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School the Trustees and officers of the University have the assistance of an advisory board of pharmacists elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The School is situated near the business center of Chicago. In addition to the larger amphitheater, known as "Attfield Hall," which has a seating capacity of three hundred and fifty, the building occupied has a smaller hall especially fitted for lectures and demonstrations in chemistry, and capable of seating one hundred and fifty persons. The chemical and pharmaceutical laboratories, as well as the microscopical laboratory and the dispensing laboratory, are commodious and well appointed.

The courses of instruction, covering two terms of seven months each, extending from September to April, inclusive, afford opportunities for a thorough technical training, such as is necessary for the successful practice of pharmacy. The subjects taught are pharmacy, chemistry, botany, and materia medica.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

REQUIREMENTS FOR ADMISSION

Applicants for admission must be at least sixteen years of age and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this School.

REQUIREMENTS FOR GRADUATION

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, must have had four years' practical experience in pharmacy, including the period of attendance at School, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this School, must pass the examinations, and must not have been absent more than five times during the term from either laboratory exercises or lectures in any department.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

Persons competent to fulfill the general requirements of admission to the University may be granted credit upon the University courses for equivalent work satisfactorily completed at the School of Pharmacy.

Further information is given in the special announcement of this school. Address W. B. Day, Actuary, School of Pharmacy, 465-7 State Street, Chicago, Ill.

SUMMER TERM

SUMMER TERM, 1901

The Summer Term of 1901 will open Monday, June 17th, continue nine weeks, and close Friday, August 16th. No examinations or other conditions will be placed upon admission. All who can do the work are welcome to get what they can from it. Those who can meet the requirements may matriculate in the University if they desire, and in that event may have credits to apply upon regular University courses when certified, upon examination or otherwise, by the professors in charge. Examination in and credit for some of the courses may be had at the end of six weeks by any who find it impossible to remain during the whole session. Instruction begins on June 18th and closes on August 14th. The exact amount of credit given for each course is stated in connection with the outline of courses given below.

FEES

A tuition fee of twelve dollars ($12) is required of all students in regular attendance at the session. This entitles one to admission to all special lectures and to as many courses as may be approved by the Director. An extra laboratory fee in some courses is charged for materials used. Any single course may be taken for a fee of six dollars ($6) and the laboratory fee, if there be any in connection with the course taken. For all students who take examinations, credit will be entered upon the University records. For further information on any matter connected with the Summer Term address Edwin G. Dexter, Director, Urbana, Illinois.

COURSES OFFERED

Art and Design.—Two courses will be offered in Art and Design in charge of Mr. Lake.

BOTANY.—Four courses, one of them an elementary course which will be accepted for admission, will be offered in botany in charge of Professor Burrill and Mr. Holferty.

CHEMISTRY.—Four courses, including an elementary course, will be offered in chemistry in charge of Professor Grindley and Mr. Sammis.

EDUCATION.—Seven courses will be offered in education in charge of Professor Dexter, Assistant Professor Brooks, President Draper, Dean Russell of Teachers' College, Columbia University, and Professor Ryley of London, England.

ENGLISH LITERATURE.—Five courses will be offered in English literature in charge of Professor Dodge, Mr. Horner, and Professor Rolfe of Cambridge.

GERMAN.—Three courses will be offered in German in charge of Dr. Brooks.

HISTORY.—Three courses, one of them an elementary course in American history, will be offered in charge of Professor Greene.

LATIN.—Three courses will be offered in Latin in charge of Professor Barton.

MATHEMATICS AND ASTRONOMY.—Ten courses in mathematics and astronomy, including elementary algebra, and plane and solid geometry, will be offered in charge of Mr. Short, Mr. Ponzer and Mr. Brenke.

PHYSICS.—Three courses, one of them an elementary course, will be offered in physics in charge of Professor Quick and an assistant.

RHETORIC.—Three courses, one of which is an elementary course that will be accepted for entrance to the University only, will be offered in rhetoric in charge of Professor Clark and Mr. Horner.

ZOÖLOGY.—Four courses, including an elementary course, will be offered in zoölogy in charge of Professor Smith, Mr. McClellan and Dr. Folsom.

Special courses of lectures will be offered presented by Dr. William J. Rolfe of Cambridge, Mass., Dean James E. Russell of Columbia University, Professor H. B. Ryley of London, England, Chancellor E. B. Andrews of the University of Nebraska, President Z. X. Snyder of the Colorado State Normal School, Superintendent James H. Van Sickel of Baltimore, Md., and others.

The libraries, laboratories, Astronomical Observatory, and Gymnasium of the University will be open for students at the summer term.

GENERAL DESCRIPTION OF COURSES

Following the description of each course of instruction will be found the necessary requirements, if any, for admission to that particular course. Careful attention must be given to these requirements and to the sequence of studies thus indicated. For instance, under Architecture 4, for students of the College of Engineering, page 188, there are required "Physics 1 and 3," and "Architecture 2 and 3." Turning now to these subjects, it is found that physics 1 and 3 are the major course of one year, architecture 2 is wood construction, and architecture 3 is metal construction. All these subjects must be satisfactorily passed before admission may be had to the class in architecture 4.

In case a course not required for graduation is selected by less than five students, the right to withdraw the same for the semester is reserved.

Graduate courses of instruction are described under the various subjects, as a rule after the undergraduate courses. They are numbered upward from 100. Other courses may often be arranged by the professors in charge to meet the special requirements of students. The subjects in which graduate courses are announced for 1901-1902 are as follows:

Agriculture, architecture, botany, chemistry, civil engineering, Danish language, economics, education, electrical engineering, French, geology, Greek, history, mechanical engineering, municipal and sanitary engineering, philosophy, physics, psychology, theoretical and applied mechanics, zoölogy.

Credit is reckoned in semester "hours," or simply

"hours." An "hour" is either one class period a week for one semester, each class period presupposing two hours' preparation by the student, or the equivalent in laboratory, shop, or drawing room.

The semester, the days, and the class period or periods during which each course is given, and the number of "hours" per semester for which the course counts, are shown after each course, as follows: The semester is indicated by the Roman numerals I., II.; the days, by the initial letters of the days of the week; the class period or periods (of which there are nine each day, numbered consecutively from one to nine), by Arabic figures; and the "hours" or amount of credit, by Arabic figures in parentheses. For example, after the description of Anthropology 1 (p. 187) occur the abbrevations I.; M., W., F.; 1; (3). These are to be read first semester, Monday, Wednesday, and Friday, first period, three "hours."

AGRONOMY

1. Drainage and Irrigation.—Location of drains and irrigation conduits, leveling, digging, laying tile and pipes, filling, and subsequent care; cost of construction and efficiency; sewers for the disposal of waste water from farm buildings and the sewage from kitchen and toilet; farm water pipes, pipe and thread cutting. Class work, laboratory and field practice. *I., first half; daily; 6, 7; (2½)*. Mr. Crane.

2. Field Machinery.—The tools and machinery of the field,—plows, harrows, and hoes; seeders, drills, corn and potato planters; cultivators, weeders and spraying machines; mowers, rakes, self-binders, corn harvesters and huskers, potato diggers, wagons, etc. Class work and laboratory practice, including setting up and testing machines, noting construction and elements necessary for successful work. *I., first half; daily; 1, 2; or II., second half; daily; 6, 7; (2½)*. Mr. Crane.

3. Farm Power Machinery.—Horse-powers, gas engines, traction engines, windmills, pumps, corn shellers, feed cutters, grinders, and threshing machines,—their construction, efficiency, durability, and care. Class room and laboratory work. *I., second half; daily; 1, 2; (2½)*. Mr. Crane.

4. Farm Buildings, Fences, and Roads.—The arrangement,

design, construction, and cost of farm buildings, especially of barns, granaries, and silos; the different kinds of fences, their cost, construction, efficiency, and durability; cost and construction of roads and walks. Class work and practice in designing and drafting buildings, operating fence-building machines, setting and testing fence posts, making walks, etc. *II., first half; daily; 3, 4; (2½).* Mr. CRANE.

5. FARM CROPS.—QUALITY AND IMPROVEMENT.—Judging of corn and oats, wheat grading, methods of improving quality, shrinkage of grain, care of stored crops to prevent injury and loss. Class and laboratory work. *I., first half; daily; 6, 7; (2½).* Mr. SHAMEL.

6. FARM CROPS.—GERMINATION AND GROWTH.—Vitality and germination of seeds, preservation of seeds, methods of seeding; conditions of plant growth; peculiarities of the different agricultural plants in respect to structure, habits, and requirements for successful growth; enemies to plant growth,—weeds and weed seeds, their identification and methods of destruction, fungous diseases, such as smut of oats and wheat, and blight, scab, and rot of potatoes, methods of prevention; insects injurious to farm crops and how to combat them. Class room, laboratory, and field work. *II., first half; daily; 6, 7; (2½).* Mr. SHAMEL.

7. SPECIAL CROPS.—A special study of farm crops taken up under an agricultural outline,—grain crops, root crops, forage crops, sugar and fiber crops,—their history and distribution over the earth, methods of culture, cost of production, consumption of products and residues, or by-products. Class work supplemented by practical field work and a study of the results of previous experiments, such as detasseling corn, injury to roots of corn by cultivation, selection and breeding of corn and other crops, with special reference to practices which apply directly to Illinois conditions. Students will have an excellent opportunity to study the work of the Agricultural Experiment Station. *II.; daily; 1, 2; (5).* Mr. SHAMEL.

Required: Agronomy 2, 5, 6.

8. FIELD EXPERIMENTS.—Special work by the students conducted in the field. This work consists in testing varieties of corn, oats, wheat, potatoes, and other farm crops; methods of planting corn, seeding grains, grasses, and other forage crops; culture of corn, potatoes, and sugar beets; practice in treating oats and wheat for smut and potatoes for scab and studying the effects upon the crops; combating chinch bugs and other injurious insects. Other practical experiments may be arranged with the instructor. Special opportunities will be given to advanced students of high class stand-

ing to take up experiments, under assignment and direction of the instructor in farm crops, on certain large farms in the state, arrangements having been made with the farm owners or managers for such experiments. *II., second half, and summer vacation; daily; arrange time; (2½-5).* Mr. SHAMEL.

Required: Agronomy 7, 12.

9. SOIL PHYSICS AND MANAGEMENT.—This course is designed to prepare the student better to understand the effects of the different methods of treatment of soils and the influence of these methods upon moisture, texture, æration, fertility, and production. It comprises a study of the origin of soils, of the various methods of soil formation, of their mechanical composition and classification; also soil moisture and means for conserving it, soil texture as affecting capillarity, osmosis, and diffusion, as affected by plowing, harrowing, cultivating, rolling, and cropping; of the wasting of soils by washing; fall or spring plowing and drainage as affecting moisture, temperatures, and root development. The work of the class room is supplemented by laboratory work, comprising the determination of such questions as specific gravity, relative gravity, water holding capacity and capillary power of various soils; also the study of the physical effects of different systems of rotation and of continuous cropping with various crops, and the mechanical analysis of soils. *I.; daily; 1, 2; (5).* Mr. WARD.

Required: Physics 1, 3, (first semester's work), and Agronomy, 2.

10. SPECIAL PROBLEMS IN SOIL PHYSICS.—This work is intended for students wishing to specialize further in the study of the physical properties of soils, and will include the determination by electrical methods of the temperature, moisture, and soluble salt content of various soils under actual field conditions; effect of different depths of plowing, cultivation, and rolling on soil conditions; effects of different methods of preparing seed beds; the physical questions involved in the formation and redemption of the so-called "alkali," "barren" or "dead dog" soils, and of other peculiar soils of Illinois. *II., or summer vacation; daily; arrange time; (5).* Mr. WARD.

Required: Agronomy 9.

11. SOIL BACTERIOLOGY.—A study of the morphology and activities of the bacteria which are connected with the elaboration of plant food in the soil, or which induce changes of vital importance to agriculture, with regard to the effects of cropping and tillage upon these organisms, and with special reference to the study of those forms which are concerned with the formation of nitrates and nitrites

in the soil and with the accumulation of nitrogen by leguminous crops. Class room and laboratory work. *II.; daily; 6, 7; (5).* Mr. WARD.

Required: Botany 5; Chemistry 3b, 4.

12. FERTILIZERS, ROTATIONS, AND FERTILITY.—The influence of fertility, natural or supplied, upon the yield of various crops; the effect of different crops upon the soil and upon succeeding crops; different rotations and the ultimate effect of different systems of farming upon the fertility and productive capacity of soils. The above will be supplemented by a laboratory study of manures and fertilizers, their composition and their agricultural and commercial value; of soils cropped continuously with different crops and with a series of crops; of the fertility of soils of different types, or classes from different sections of Illinois. *II.; daily; 1, 2; (5).* Professor HOPKINS.

Required: Chemistry 13; Agronomy 6, 9.

13. INVESTIGATION OF THE FERTILITY OF SPECIAL SOILS.—This course is primarily designed to enable the student to study the fertility of those special soils in which he may be particularly interested and to become familiar with the correct principles and methods of such investigations. It will include the determination of the nature and quantity of the elements of fertility in the soils investigated, the effect upon various crops of different fertilizers added to the soils, as determined by pot cultures, and, where possible, by plot experiments. This work will be supplemented by a systematic study of the work of experiment stations and experimenters along these lines of investigations. *I., II.; arrange time; (2 to 5).* Professor HOPKINS.

Required: Agronomy 12.

14. HISTORY OF AGRICULTURE.—Its development and practice with particular regard to the agriculture of those nations which have contributed most to agricultural progress, including a sketch of the earliest agricultural practices as illustrated by the agriculture of the Egyptians, the Jews, the Chinese, and other ancient peoples; followed by a study of the development of Roman agriculture and its influences upon the practices in other nations; a consideration of the beginnings and systems of British agriculture with regard to their influence upon social conditions; and, finally, the development of modern agriculture with special reference to that of England, Germany, France, and the United States. *I., second half; daily; 3; (2½).* Mr. WARD.

15. COMPARATIVE AGRICULTURE.—Influence of locality, climate, soil, race, customs, laws, religion, etc., upon the agriculture of a

country, and incidentally upon its people. One crop only, and its effect, as rice; Indian corn in American agriculture and affairs. Varying conditions under which the same crop may be produced, as wheat. Statistical agriculture. Influence of machinery and of land titles, whether resting in the government, in landlord, or in occupant. Relation of agriculture to other industries and to the body politic. Lectures. *II.; F.; 4; (1).* Professor DAVENPORT.

Required: Two years of University work.

16. GERMAN AGRICULTURAL READINGS.—A study of the latest agricultural experiments and investigations published in the German language, special attention being given to soils and crops. The current numbers of German journals of agricultural science will be required and used as a text. This course is designed to give the student a broader knowledge of the recent advances in scientific agriculture, and, incidentally, it will aid him in making a practical application of a foreign language. It is recommended that it be taken after Agronomy 12. *II.; M., W.; 4; (2).* Professor HOPKINS.

Required: Two years' work in German.

17. SPECIAL WORK IN FARM MECHANICS.—Students may arrange for special work in any of the lines covering drainage or farm machinery, either in the second semester or the summer. *(2½-5).* Mr. CRANE.

18. INVESTIGATION AND THESIS.—This course varies in the subject matter of study, according to the department in which theses are written. The work is under the direction of the head of the department in which the work is done. *I., II.; arrange time; (5 to 10).*

ANIMAL HUSBANDRY

1. SHEEP, MUTTON, AND WOOL.—The comparative quality and value of mutton cuts; exhaustive study of different grades of wool and their uses in manufactures, together with a critical examination of animals both for mutton, wool, and breeding purposes. The history, development, and characteristics of the several breeds; the location of the principal flocks; the most successful methods of flockmasters, and the economic production of mutton and wool for the markets of the world. Lectures, assigned readings and extensive practice in judging. *I.; M., W., F.; 3, 4; (3).* Mr. KENNEDY.

2. SWINE AND THEIR PRODUCTS.—A study of the types and breeds of swine and the most successful methods of growing and marketing their products. Lectures, assigned readings, and practice in judging. *I.; T., Th.; 3, 4; (2).* Mr. KENNEDY.

3. BEEF CATTLE AND BEEF.—The various cuts of beef, their comparative quality and cost; the beef type and a critical study

of animals from the standpoint of the butcher, the feeder and the breeder. The history, development, and characteristics of the breeds suitable for beef production; comparison of the most successful methods of beef production in this and other countries; the by-products of the feed lot and the slaughter house and their bearing upon the cost of beef; selection of breeding animals and the care and management of a breeding herd of beef cattle. Lectures, assigned readings, and exhaustive practice in judging. *I.; daily; 6, 7; (5).* Mr. KENNEDY.

4. DRAFT HORSES.—The horse market; an outline of the types and classes in demand; special study of the draft horse and of the breeds suitable for his production; the best methods of producing and marketing draft horses; selection of breeding stock and the care and management of a breeding stud. Lectures, assigned readings, and exhaustive practice in judging and examining for soundness. *II., first half; daily; 6, 7; (2½).* Professor DAVENPORT and Mr. KENNEDY.

5. DRIVING HORSES AND SADDLERS.—Coach, carriage, and road horses; bus horses, cab horses, and saddlers; a systematic study of their classes and types and of the breeds most suitable for their production; the breeding, care, and development of the driving horse and his proper education and training. Lectures, assigned readings, and practice both in judging and in training for driving purposes. *II., second half; daily; 6, 7; (2½).* Professor DAVENPORT and Mr. KENNEDY.

6. LIVE STOCK MANAGEMENT.—The housing, feed, and management of flocks and herds and the care and surroundings of work horses and drivers. *II.; M., W., F.; 8; (3).* Mr. KENNEDY.

7. PRINCIPLES OF STOCK FEEDING.—The functional activities of the animal body and the end products of their metabolism. Foods are considered, first, chemically as affording materials for the construction of the body tissues or of animal products, as meat, milk, wool, etc.; second, dynamically as supplying the potential energy for the body processes and for external labor; third, as to the fertilizing value of their residues. There is involved a study from the breeder's standpoint of the perfect development of the animal after birth, and also of the phenomena of animal nutrition from the economic standpoint, in which animal activity is considered as an agent for transformation of energy, and the manufacture of animal products as a source of profit. *II., first half; daily; 3; (2½).* Professor DAVENPORT.

Required: Chemistry 1, 3b, 4, 13; Physics 1, 3, first semester; one year of Botany or Zoölogy.

8. Breeding.—The principles and phenomena of evolution as applicable to the improvement of animals and plants; variation, its nature, extent, importance, and causes; correlated variations, the effects of use and disuse, and the influence of environment; the nature and operations of heredity, particularly as to inheritance of acquired characters; instinct and intelligence; panmixia, and disappearance of characters; latent characters and reversion; inbreeding and outbreeding, hybridism, crossing, and grading—all as bearing upon the efficiency of selection and care. The aim is to bring every known principle of reproduction to the assistance of the breeders' art. *I.; daily; 4; (5).* Professor Davenport.

Required: Two years of University work, including one year of Botany or Zoölogy.

9. Investigation and Thesis.—Upon lines to be arranged with instructor for one or both semesters, according to nature of the subject. *(5-10).* Professor Davenport and Mr. Kennedy.

ANTHROPOLOGY

1. General Anthropology.—This course begins with a study of the physical and psychical element of ethnography. Theories as to the origin of man are discussed, and the various races of mankind are distinguished and described. Special attention is given to the historical and comparative study of customs, ceremonies, rights, beliefs, and folklore of primitive peoples, with reference to the common characteristics and fundamental instincts of mankind, and to the origin and growth of existing customs and social institutions. *I.; M., W., F.; 1; (3).* Professor Daniels.

Required: A major or minor course in Economics, Geology, Psychology, or Zoölogy.

ARCHITECTURE

2. Wood Construction.—Formulæ and data for computing dimensions and strength of columns, beams, girders, etc., of wood or metal, are given and applied in the solution of examples. Wood and its uses in construction and decoration, seasoning, shrinkage, defects, and modes of protection from decay. Construction and design of wooden floors, walls, ceilings, and roofs, and joinery, doors, windows, bays, inside finish, cornices, wainscoting, stairs, etc. *Kidder's Building Construction and Superintendence; Part II.; Jones's Logarithmic Tables. I.; lecture, M., Th.; 4; drawing, Tu., Th.; 7 and 8. (3)* Assistant Professor McLane.

Required: General Engineering Drawing 1, 2.

3. Masonry and Metal Construction.—Foundations of stone,

brick, concrete, and piles; materials employed in stone masonry, their uses, defects, qualities, and modes of preparation. Kinds of masonry and external finish. Tools for stone cutting and their use. Preparation of working drawings, with application to the arch, vault, and dome. Brick masonry, its materials, and bonds. Manufacture and refining of cast iron, wrought iron, and steel, with processes of pattern-making, molding, casting, refining, rolling, etc., and standard dimensions or sections. Special properties and value of metal in a structure, designing a line of columns in mercantile building, and of beams, girders, and footings, together with the study of joints and connections. *Kidder's Building Construction and Superintendence, Part I. II.; lecture, Tu., Th.; 5; drawing, Tu., Th.; 7 and 8; (3).* Assistant Professor McLane.

Required: General Engineering Drawing 1, 2.

4. Sanitary Construction. Recitations and lectures, designs for special problems. Study of plumbing, trap ventilation, removal of wastes, construction of water closets, drains, and systems of water supply; sewage disposal. Water supply and fixtures in dwellings. *Gerhard's Sanitary Engineering; Lectures on Sewage Disposal. I.; M., W., F.; 7; (3).* Assistant Professor McLane.

Required: Physics 1, 3; Arch., 2, 3.

5. Graphic Statics and Roofs.—Elements of graphic statics and applications in designing trussed roofs. Forces, equilibrium, reactions, moments, bending moments, and shears on beams, center of gravity, moment of inertia and kern of cross sections. Construction of wooden and of metallic roofs, mode of computing loads on roof trusses, obtaining end reactions, drawing strain diagrams, and determining sectional dimensions of members, with the designing of joint connections. *Ricker's Trussed Roofs; Ricker's Elementary Graphic Statics. II.; M., W., F.; section A, 1, 2; section B, 4, 5; 3 hours' drawing a week; (3).* Assistant Professor McLane.

Required: Math. 2, 4, 6; Theoretical and Applied Mechanics 1, 2 or 4, 5.

6. History of Architecture.—Continues through the year and is taken with architecture 7 and 11. Commencing with Egyptian and ending with modern styles, a careful study is made of the more important styles, examining historical conditions, local and inherited influences, structural materials and system, special ornaments, purposes and designs of the buildings, with the most important typical examples of each style. Especial attention given to ideas useful or suggestive in American work, and to tracing gradual evolution of architectural forms. One recitation and two illustrated lectures

a week. References made to Fergusson, Lubke, Durm, Reber, Gailhabaud, etc. *Hamlin's History of Architecture. I., II.; M., Tu., W., Th.; 4; (4).* Professor RICKER.

Required: Architecture 4.

7. DETAILS OF STYLES.—Exercises in drawing at large scale the most important details of the Grecian, Roman, Early Christian, Byzantine, Mohammedan, Romanesque, Gothic, and Renaissance styles. Taken with Architecture 6. *Notes and Sketches. I., II.; Tu., Th.; 2, 3; (1).* Assistant Professor McLANE.

Required: Architecture 2, 3, 8.

8. THE ORDERS OF ARCHITECTURE.—A study of the Five Orders of Architecture, and architectural Shades and Shadows. A careful study of the proportions and details of the Orders is first made with lectures, recitations, blackboard sketches from memory, and problems requiring the use of the Orders. *Ware's Five Orders; Lectures on Shades and Shadows. I.; lecture, W., F.; 4; drawing, Tu.; 1, 2, 3, 4, 5; (3).* Assistant Professor TEMPLE.

Required: Gen. Eng'g Drawing 1, 2; Architecture 20 or 21.

9. MONTHLY PROBLEMS.—Preliminary instruction in rendering.—An entire day in each month during the second and third years is devoted to a problem in design, requiring the use of the Orders. Program is made known at beginning of the exercise, and sketches must be completed and rendered during the same day. Credit is given for this study only after the completion of each year. *I., II.; last Th. in each month, all day; (½ for each semester.)* Assistant Professor TEMPLE.

Required: General Engineering Drawing 1, 2.

10. WORKING DRAWINGS.—Conventional methods for representing the different parts of buildings in general and in detail, conventional colors and sectioning; systems of lettering and figuring drawings; working drawings; tracing; drawing for reproduction. Taken with Arch. 16. *II.; Tu.; 6, 7, 8; (1).* Associate Professor WHITE. WHITE.

Required: Architecture 2, 3.

11. ARCHITECTURAL SEMINARY.—Reports and discussions of original investigations of assigned topics in History of Architecture; reviews of books, abstracts of current technical journals, and other publications. Taken with Arch. 6 and 7. *I., II.; F.; 4; (1).* Pro-

12. SUPERINTENDENCE, ESTIMATES, AND SPECIFICATIONS.—This study comprises several specialties not otherwise provided for, so far as they can be taught in a professional school. The subjects treated include the duties of a superintendent, his relations to archi-

tect, owner, and contractor, the method of supervising work, systems of keeping building accounts, the usual methods of measurement of materials and work, arrangement of computations in proper and convenient order, and approximate prices of material and labor, which vary in different localities. The methods of estimating by squaring, cubing, units, and quantities are each employed and illustrated by problems. A study is made of the general and special clauses of specifications and of their arrangement, as well as of methods of classifying material to facilitate writing specifications. Practice is obtained by writing several sets. *Clarke's Building Superintendence; Lectures on Building Law; Hodgson's Estimating; Bower's Specifications. I.; Tu., W., Th.; 6; (3).* Associate Professor WHITE.

Required: Architecture 4.

13. HEATING AND VENTILATION.—Scientific theory and practice of warming and ventilating buildings is the object of this study. Commencing with fuels and production of heat, then passing to flow of gases through ajutages and pipes, applying these data to calculation of dimensions of air ducts and chimneys. Different systems of heating by furnaces, hot water, steam, etc., are next examined, with details of each. Sources of impurity in the air and requirements of good ventilation are then considered, with the different methods of ventilation by aspiration, by fans, etc., ending with the study of fans of different types. Numerous problems are given, and heating plants designed. *Carpenter's Heating and Ventilating Buildings; Ricker's Notes on Heating and Ventilation. I.; Tu., W., Th., F.; 4; (4).* Associate Professor WHITE.

Required: Architecture 4, 15; Physics 1, 3.

14. ARCHITECTURAL PERSPECTIVE.—Theory of perspective is taught with labor-saving methods of abbreviating work, and designing in perspective is made a special aim, being very useful to a draftsman in preparing sketches for clients. Problems in angular, parallel, vertical, and curvilinear perspective, as well as in perspective shades and shadows, are solved, requiring original work as far as possible, so as thoroughly to prepare the student for any kind of work in perspective, instead of restricting him to the study and use of a single system. *Ware's Modern Perspective. II.; M., W., F.; 3, 4; lecture, Th.; 3; (3).* Assistant Professor TEMPLE and Professor WELLS.

Required: General Engineering Drawing 1, 2a.

15. REQUIREMENTS AND PLANNING OF BUILDINGS.—Lectures are fully illustrated by plans sketched on the blackboard, which must

be embodied in students' notes. Numerous problems in planning are given. *II.; M., W., F.; 1, 2; (3).* Associate Professor WHITE.

Required: General Engineering Drawing 1, 2; Architecture 2.

16. RESIDENCE DESIGN.—Practice in design, and study of the requirements for dwellings. The work is limited to residences, since this class of buildings is likely to afford the graduate his first opportunity for independent original work. *Osborne's Notes on House Planning.* Lectures and blackboard sketches to be copied in students' notes. Taken together with Arch. 10; *II.; lecture, W.; 6; drawing, Th.; 6, 7, 8; (2).* Associate Professor WHITE.

Required: Architecture 4, 8.

17. ARCHITECTURAL DESIGNING.—Elementary architectural forms are first traced and sketched from memory; simple problems in design are then solved by sketch plans, elevations and sections, rendered in shade or color as required. The object is to obtain as much practice in original design as possible, and to form a collection of suggestive tracings and sketches. *I.; M., W., F.; 1, 2, 3; (3).* Assistant Professor TEMPLE.

Required: Architecture 6, 7, 8, 9, 11, 20 or 21.

18. ARCHITECTURAL COMPOSITION.—A careful study is made of the laws of architectural design and of the results of experience embodied in the text-book, with numerous references to other authors. Commences with general principles, passing to an examination of proportions employed in most important styles, arrangement of plan, external design in general and detail, ceilings, and interiors, arrangement of corridors, stairways, and entrances, of internal courts, and of halls for large assemblages. Frequent problems in design afford practical applications of the principles. *Ricker's Translation of Architektonische Composition* (Handbuch der Architektur). *II.; M., W., F.; 2 and 3; (3).* Professor RICKER.

Required: Architecture 6, 7, 11, 17, 20 or 21.

19. ARCHITECTURAL ENGINEERING.—This continues the study of graphic statics, commenced in "Graphic Statics and Roofs," with applications to metallic roofs of wide span, roof trusses of curved or unusual form, and those supported by abutments and jointed. Spherical and conical trussed domes. Effect of moving loads on girders, the graphical analysis of the arch, vault, and dome, and of the Gothic system of vault and buttress. Construction and details of steel skeleton buildings. Practical applications are made to a series of problems in design for specified cases. *Ricker's Notes on Advanced Graphics; Freitag's Architectural Engineering; Ricker's Translation of Wittmann's Arch and Vault.* References to the works

of Planat, Landsberg, DuBois, Clarke, Ott, Levy, Muller-Breslau, etc., on Graphic Statics. *I.; Tu., W., Th.; 7; (3).* Associate Professor WHITE.

Required: Math. 2, 4, 6, 7, 9; Theoretical and Applied Mechanics 1, 2; Architecture 2, 3, 4, 5.

20. Prescribed.

Any courses offered in Art and Design amounting to three semester hours. *I., II.; daily; (3).* Professor FREDERICK.

21. Optional.

Any advanced courses offered in Art and Design. *I., II.; daily;* Professor FREDERICK.

Required: Architecture 20.

The art and design courses offered as Architecture 20 and 21 are varied to meet the special needs of students of architecture.

22. RENAISSANCE DESIGN.—A prescribed series of tracings of important details is made, and problems in design are worked out as fully as time permits. *I.; M., F.; 6, 7, 8; W.; 7, 8, 9; (3).* Assistant Professor TEMPLE.

Required: Architecture 17, 18.

23. GOTHIC DESIGN and 24. ROMANESQUE DESIGN.—Courses 23 and 24 are taken together. A prescribed series of tracings of important details is made, and problems in construction and design are worked out as fully as time permits. *Ricker's Translation of "Redtenbacher's Leitfaden." I.; lecture, M.; 2; drawing, W., F.; 1, 2, 3; (3).* Professor RICKER and Associate Professor WHITE.

Required: Architecture 6, 7, 11, 14, 18, 20 or 21.

25. DESIGN OF ORNAMENT.—The study of historical ornament with exercises in designing architectural ornament to decorate the structural forms usually found in practice. These designs will be charcoal or crayon sketches, drawings rendered in shade or color, or finished drawings. They will be made on as large a scale as possible, usually full size. *Lectures. Meyer's Hand-book of Ornament. II.; Tu.; 1, 2, 3; Th., F.; 1, 2; (3).* Assistant Professor TEMPLE.

Required: Architecture 6, 7, 11, 17, 18, 20.

27. DOMESTIC ARCHITECTURE. (For a class of not less than six students in Household Economics).—The elements of the planning, sanitation, decoration, and furnishing of dwellings.

One lecture weekly on planning and arrangement, with exercises in making skeleton plans, by Associate Professor WHITE.

One lecture weekly on water supply and fixtures, sanitary fixtures and plumbing, heating, and ventilation, by Assistant Professor McLANE.

One lecture weekly on decoration and furnishing, by Professor RICKER.

A considerable amount of additional reading will be required. *II.; arrange time; (3).*

28. MURAL DECORATION.—Includes the study and analysis of some of the best examples of modern decorated interiors; the appropriate use of various materials; the rendering of scale drawings in color, with especial reference to the esthetic effect produced by various harmonies of color. *I.; Tu., Th.; 1, 2, 3; II.; M., W.; 2, 3, 4; (2).* Professor WELLS.

29. SHORT HISTORY OF ARCHITECTURE.—(Elective for students in the College of Science or Literature and Arts). A careful study of the important historical styles of architecture, their origins, systems of construction, elementary forms, decoration by sculpture and painting, chief kinds of buildings, and a series of selected examples, illustrated by lantern slides. *Two weekly lectures with reading of Hamlin's History of Architecture, I.; arrange time, (2).* Professor RICKER.

30. THESIS.—The preliminary work on the thesis is begun during the first semester, but no special time is set apart on the program nor any credit granted for it during this semester.

In the second semester credit may be given to the amount of seven hours in architecture and four hours in architectural engineering, and a regular time shall be assigned on the program for this part of the work, but the amount of time so prescribed shall in no case be considered to be the total thesis requirement.

31. ARCHITECTURAL READINGS.—Reading of French and German architectural books for obtaining an acquaintance with technical terms in those languages. Optional work in either or both languages is offered to architectural students. *Laloux' Architectural Grecque; Hauser's Styl-Lehre. I.; Each (1).* Professor RICKER.

Required: French or German 10 hours.

COURSES FOR GRADUATES

Primary

101. Construction of Extensive Wooden Buildings.

102. Recent Uses of Stone, Brick, and Terra Cotta in Architecture.

103. Metallic Skeleton Buildings.

104. Fire-resisting and Fire-proof Buildings.

105. Sanitation of Public and Semi-public Buildings.

106. Researches on the Evolution of Architectural Styles.

107. Higher Applications of Graphic Statics.

108. Heating and Ventilation of Large Buildings.

109. Higher Studies in Architectural Design.

110. Researches and Experiments in Applied Esthetics.

111. Translation of an approved Technical Architectural Work from the French or German.

112. Indexing and Classification of Periodicals, Books, Data, and Technical Information for Architects and Engineers.

Secondary

113. Stereotomy Applied to American Problems.

114. Examinations of Heating and Ventilation of Buildings.

115. Photography for Architects.

116. Methods of Reproducing Drawings, Specifications, etc., for Architects.

117. Higher Problems and Methods in Perspective.

118. Practice in Estimates, Specifications, etc., for Large Buildings.

119. Higher Industrial Design.

120. Advanced Water-color Painting.

121. Study of Office Methods and Arrangements.

122. Any *primary* offered in the College of Engineering.

123. Electric Lighting and Wiring for Buildings.

ART AND DESIGN

1. Free-Hand Drawing.—The aim of this course is to develop the ability to see and express accurately and simply the appearance of form. After a series of lectures upon the principles of perspective, illustrated by drawing from geometric solids, these principles are applied by drawing (largely in outline) books, chairs, casts of ornament, details of machinery, plants and flowers from nature, mounted specimens and whatever will assist the students in their university courses or prepare them for future work in the department. In the latter part of the semester, students not able to take further work in the department are given instruction in expressing light and shade. Weekly exercises are given in lettering and the principles of design. *I.; daily; section A, 1, 2; section B, 3, 4; section C, 6, 7; (3); II.; daily; 3, 4; (3).* Mr. Lake.

1b. A special section is arranged for students from the College of Science. *I.; Th.; 2, 3, 4; (1).* Professor Frederick.

2. Chiaroscuro.—This course is devoted to the study of the principles of light and shade with practice in expressing color values, textures, etc., in charcoal, crayon, chalk, or wash drawings

of still-life, casts and the posed figure. Color may be taken up during the second half of the semester. If the weather is suitable, out-door work is carried on the latter part of the semester. Weekly exercises are given in applied design. *II.; daliy; section A, 1, 2; section B, 3, 4; section C, 6, 7; (3).* Mr. LAKE.

Required: Art and Design 1.

3. CAST DRAWING.—A course offered students who enter the department with a knowledge of perspective and chiaroscuro (courses 1 and 2), but without sufficient skill to enter advanced courses. Outline and shaded drawing from the antique and from casts of ornament. Sketching from life. Weekly exercises in design. *I., II.; daily; 3, 4; (3).* Professor FREDERICK.

4. PAINTING FROM NATURE.—Still-life in oils, water-colors, or pastels. *I.; M., W., F.; 6, 7; (2).* Professor WELLS.

Required: Art and Design 1, 2.

5. ADVANCED PAINTING FROM NATURE.—Still-life and landscape in oils, water colors, or pastels. *II.; M., W., F.; 6, 7; (2).* Professor WELLS.

Required: Art and Design 4.

8. MODELING.—This course is designed to give freedom in handling clay and introduce the student to the third dimension,—relief, never fully appreciated from the study of drawing and painting. The greater part of the semester is devoted to sketching (from cast and from life), with occasional careful copies of the antique and original designs for plaster decorations, iron, and terra cotta.. The course is especially planned to offer students from the department of architecture every opportunity for the study of architectural ornament. Instruction is given in casting. *Frederick's Plaster Casts and How They are Made. I., II.; section A, M., W., F.; 3, 4; section B, M., W., F.; 6, 7; (2).*

8a. A special section is made for architectural students. *I.; M., F.; 7, 8; II.; Tu.; 2, 3, 4; (1).* Professor FREDERICK.

Required: Art and Design 1 or 3.

9. ADVANCED MODELING.—This course is a direct continuation of course 8. Architectural students work full scale capitals, spandrels, panels, etc., of their own design. Special art students and others work largely in the round from the antique and from life. *II.; section A, M., W., F.; 3, 4; section B, M., W.,F.; 6, 7; (2).* Professor FREDERICK.

Required: Art and Design 8.

10. PEN RENDERING.—In this course drawings are made with special reference to the requirements of the reproductive processes.

The instruction is entirely individual, students working along lines most helpful to them in their several courses. *I.; S.; 2, 3, 4; (1).* Professor FREDERICK.

Required: Art and Design 1 or 3.

11. LIFE CLASS.—Study of the draped human figure with reference to portraiture and illustration. *II.; daily; 6, 7; criticism, M., F.; (3).* Professor WELLS.

Admission to this class on examination by the instructor only.

12. INDUSTRIAL DESIGN.—Study of the relation of design to manufacture. *I., II.; daily; time to be arranged; (3).* Professor FREDERICK.

Required: Art and Design 1, 2 or 3, 4, 8, 10.

14. PERSPECTIVE.—Lectures upon the principles of (mechanical) perspective. The problems given are arranged to have a direct bearing upon the work of other courses in the department. Two hours per week outside work required. *I., II.; Tu.; 5; (1).* Professor FREDERICK.

16. COLOR.—An elementary course planned to supplement the weekly exercises in design given in courses 1, 2 and 3. Lectures upon the use of color in decoration. Comparison of the several published theories of color. In the second semester illustrated lectures upon historic ornament are given, and practical designs in the spirit of each historic school are produced. Two hours per week outside work required. *I., II.; Th.; 5; (1).* Professor FREDERICK.

19. HISTORY AND CRITICISM OF THE ART OF PAINTING.—Fortnightly illustrated lectures extending through the school year. *I., II.; time to be arranged. (½).* Professor WELLS.

20. TEACHERS' CLASS.—In this class an application of the work of the other courses offered by the department to public school problems is made. Published courses of art study for the public schools are compared, and the class plans and arranges a course of art study for the eight grades of the public schools. Two hours per week outside work required. *I., II.; W.; 8; (1).* Mr. LAKE.

ASTRONOMY

4. GENERAL ASTRONOMY.—Minor course. The course aims to supply a general knowledge of the facts of astronomy, a clear conception of underlying principles, and some acquaintance with the methods of arriving at these facts. Studies are made in the location of constellations and stars. In this course, practical questions are considered, though not made matters of chief importance, the literary and purely scientific features of the science being assigned chief prominence. *Young's Elements of Astronomy,* also *Young's*

General Astronomy. II.; daily; section A, 4; section B, 6; (5). Mr. Brenke.

Required: Mathematics 4.

5. General Astronomy and Cosmogony.—This is a continuation of course 4, and together with 4 it constitutes a line of study for students who wish to pursue astronomy as a major subject. In the latter part of this course the evidence both for and against the Nebular Theory is reviewed. The role of the tides in cosmogonic development receives special consideration, and the present view of the origin and cosmic history of the earth-moon system, together with the testimony of astronomy relating to it, are recapitulated to the epoch where astronomy yields to geology. A summarized statement of the results of the researches of Darwin and of Lord Kelvin is included. *I.; M., W., F.; 6; (3).* Mr. Brenke.

Required: An entrance credit in astronomy.

6. Practical Astronomy.—This course, which is offered both for engineers and special astronomical students, is intended to give the student training in the use of instruments of precision. As a subordinate matter, he is introduced to instruments of a higher grade than those employed in ordinary surveying. A second purpose of the course is to train the student in the art of computing. Model forms of record and reduction for problems are set before him, and the advantage of compact and orderly arrangement of all work is strenuously insisted upon. As a concrete outcome of the above training, the student should acquire the ability to determine latitude, time, and azimuth with such instruments as are used in the ordinary practice of civil engineering. An essential part of the work is the theory of astronomical instruments. *Campbell's Practical Astronomy. I.; Tu., Th.; 6, 7; (2).* Mr. Brenke.

Required: Astronomy 4.

7. Theory of Orbits and Special Perturbations.—This course embraces the following subjects: The formation and integration of the differential equations of motion of a system of bodies and the derivation of the laws of undisturbed elliptic, parabolic, and hyperbolic motion. An investigation of the various formulæ and methods for finding the special perturbations of a heavenly body constitutes an essential part of this course. The methods of Encke, Hansen, and of Variation of Parameters, are developed and studied at length. *Oppolzer's Lehrbuch der Bahnbestimmung.* Mr. Brenke.

Required: Mathematics 1, 3, 7, 9, 14, 16; Astronomy 4.

9. Celestial Mechanics.—This course is a continuation of

course 7, and has to do chiefly with the development and discussion of the absolute perturbations both for the case in which the orbital eccentricities and inclinations are small, and in which they are so large as to make the ordinary series too slowly convergent, or even divergent. Some time is also given to the study of subjects connected with figures of equilibrium of the heavenly bodies, and such other questions as are treated in Tisserand's Mecanique Celeste. Mr. BRENKE.

Required: Astronomy 7.

10. ASTRONOMICAL SEMINARY AND THESIS.—The work of this seminary is on subjects either related to those considered in the senior courses, or connected with questions arising out of thesis investigations. This course is given in conjunction with Astronomy 7 and 9, or with Mathematics 12 and 13, according as the one or the other is current. *I., II.; Tu., Th.; 7; (2).* Mr. BRENKE.

11. CALCULUS OF VARIATIONS.—See Mathematics 20.

12. SPHERICAL HARMONICS.—See Mathematics 21.

13. POTENTIAL FUNCTION.—See Mathematics 22.

14. OBSERVATIONAL ASTRONOMY.—The laboratory method of presentation is exclusively used in this course. Direct observational studies of celestial phenomena, with and without instrumental aid, constitute the major portion of the work. The problems set for solution will be largely individual and will be adapted to the degree of skill and maturity of the student. Advanced students may here find an introduction to the working methods of an astronomical observatory. In connection with Astronomy 5 it presents the underlying principles and methods of astronomy from both the theoretical and practical sides, to such an extent as to meet the requirements of a liberal education. *I.; Tu., Th.; arrange hours; (2).* Mr. BRENKE.

Required: Mathematics 1, 3.

BOTANY

1. HISTOLOGY AND PHYSIOLOGY.—General vegetable histology and vegetable physiology, or study of the cells and tissues of plants and their courses of development in structures and organs; and studies in the general activities of plants correlated with external conditions. Lectures or recitations and laboratory work. *II.; daily; 6, 7; (5).* Professor BURRILL and Mr. HOLFERTY.

Required: Entrance credit in Botany, or Botany 11; Chemistry 1; Art and Design 1.

2. MORPHOLOGY.—The general morphology and taxonomy of plants, including a study of selected types in each of the great divisions of the vegetable kingdom. Lectures or recitations and labora-

tory work, with occasional field excursions. *I; daily; 6, 7; (5).* Professor Burrill and Mr. Holferty.

Required: Entrance credit in Botany, or Botany 11; Art and Design 1.

In courses 1 and 2 taken together, either in the order of the numbers or the reverse, there is offered a comprehensive treatment of the subject, to serve the double purpose of an introduction to the science for those who desire to continue the study, and as a complete course for general students. Each semester's work is, however, independent, and may be separately credited.

3. Cytology and Physiology.—Mostly laboratory work and assigned reading. The course extends through the year, but the work of each semester may be credited separately under the designations of 3a and 3b. The first semester is devoted mainly to cytology and histology, with special attention to technique; during the second semester experimental physiology receives chief attention. *I., II.; daily; 1, 2; (5).* Professor Burrill and Mr. ....

Required: Botany 1.

4. Taxonomy of Special Groups.—Mostly laboratory and herbarium work, and assigned reading. Field excursions are required. The course extends through the year, but the work of each semester may be credited separately under the designations of 4a and 4b. The first semester is devoted mainly to spermaphytes, the second to sporophytes. *I., II.; daily; 1, 2; (5).* Professor Burrill.

Required: Botany 2.

5. Bacteriology.—An introduction to the knowledge of the subject and instruction in methods. *II.; daily; 3, 4; (5).* Professor Burrill and Mr. Holferty.

Required: Chemistry 1, and at least one semester's work in Botany or Zoölogy, in the University.

6. Bacteriology for Sanitary Engineers.—Bacteriological methods and their application in water analysis and sewerage. *I; (last seven weeks); daily; 3, 4; (2).* Professor Burrill and Mr. Holferty.

7. Plant Pathology.—Diseases and injuries of plants. Mostly laboratory, herbarium, and field work, and assigned reading. *I.; M., W., F.; 1, 2; (3).* Professor Burrill and Mr. Clinton.

Required: Botany 1, 2.

8. Economic Botany.—Useful plants and plant products. Lectures and assigned reading. *I.; Tu., Th.; 1, 2; (2).* Professor Burrill.

9. INVESTIGATIONS AND THESIS.—Research work upon selected subjects. Special arrangements for this work should be made during the preceding year. *I., II.; daily; arrange time; (5).* Professor BURRILL.

Required: Botany 1, 2 and at least one year from 3, 4, 5, 7.

10. SEMINARY.—Reports and discussions upon assigned topics and results of research work. For advanced and graduate students. *I., II.; F.; arrange time; (1).* Professor BURRILL.

11. INTRODUCTORY COURSE.—Elementary work chiefly upon flowering plants, including their general structure, activities life-relations, and classification. The laboratory work is supplemented by field observations and by the study of text. Registration is accepted for the first or last half, or for the whole of the semester. The work during the first nine weeks is upon the structures and organs of plants, and upon the classification of specimens; afterward anatomy, physiology and ecology have chief attention. The first half is recorded as course 11a, the second half as 11b. The course as a whole is planned to offer an opportunity of gaining a general knowledge of the most familiar and most important groups of the vegetable kingdom, and is open to those not presenting the subject for entrance credit. *I.; daily; 1, 2; (2½ or 5).* Mr. HOLFERTY.

COURSES FOR GRADUATES

101. BIOLOGICAL BOTANY.—The preparation and study of material by histological and embryological methods, and experiment work with living vegetation in the laboratory and field in working out special problems in the development, physiology, and pathology of plants.

102. SYSTEMATIC BOTANY.—Critical and comparative studies of species included in chosen groups of spermaphytes or sporophytes, or from selected geographic areas, in connection with considerations of genealogic development, geographic distribution, and interrelated association.

103. BACTERIOLOGY.—Investigations upon morphologic and physiologic variation due to treatment; systematic studies upon the number, validity, and relationship of species, researches upon special saprophytic or parasitic kinds of bacteria and upon methods of favoring or combating their activities.

104. EVOLUTION OF PLANTS.—Observations and experiments upon plants and studies in related literature, in gaining information upon such topics as the following: The influence of environment, effects of self and cross fertilization, tendencies of variation, philosophy of selection, nature and laws of heredity.

CHEMISTRY

1. Elementary and Experimental Chemistry.—This course deals with the general principles of the science; the commoner elements and their typical compounds are studied somewhat in detail; attention is constantly directed to the applications of chemistry in daily life and industrial processes.

The laboratory work comprises a series of such experiments, many of them quantitative, as serve best to illustrate the relations between the observed facts and the general principles, and to familiarize the student with the methods and facts of chemistry, *Richter's Inorganic Chemistry. I.; Lecture, W., F.; 5; Laboratory section A, M., W., F.; 1, 2 or 2, 3; section B, Tu., Th., Sat.; 2, 3 or 3, 4; section C, M., W., F.; 6, 7 or 7, 8; Section D, (engineers only) Tu., Th.; 6, 7 or 7, 8. Quiz; section A, M.; 2; Th.; 5; section B, M.; 5; Th.; 3; section C, W.; 7; Sat.; 4; section D, Tu.; 5; Th.; 7. For engineers (4); for all others (5).* Professor Palmer, Associate Professor Grindley, Mr. Sammis, Mr. Dehn, and Mr. Johnston.

1a. Minor Course—Elementary and Experimental Chemistry.—Similar to 1, but consisting chiefly of recitations and laboratory work. *Richter's Inorganic Chemistry. II.; Recitations, Tu., Th., S.; 1; Laboratory, M., W., F.; 1, 2 or 2, 3; (5).* Associate Professor Grindley, Mr. Sammis and Mr. Dehn.

2. Descriptive Inorganic Chemistry.—This course is required of all chemical students. It is mainly devoted to a study of the metallic elements, their classification, compounds, and chemical properties. The work is from lectures and assigned texts, without laboratory work. *Remsen's Advanced Course. II.; section A, M., W., F.; 2; section B, M., W., F.; 3; (3).* Associate Professor Grindley.

Required: Chemistry 1.

2a. Inorganic Preparations.—This is a laboratory course designed to accompany the descriptive work of course 2. The work includes the precipitation, crystallization, and purification of various salts, the material being largely obtained from laboratory wastes. *Thorp's Inorganic Chemical Preparations. II.; Tu., Th., S.; 1, 2, 3; (3).* Associate Professor Grindley, Mr. Sammis, and Mr. Dehn.

Required: Chemistry 1.

3. Qualitative Analysis.—This course includes a study of salts, their formation, solubilities, chemical reactions, etc. The periodic classification of the elements is made the basis for developing the principles of analysis. The work in the laboratory, after illustrating these principles, is occupied with the determination of

basic and acid constituents of a given number of unknown substances. Analysis is also made of more complex substances, including natural and commercial products; and the work concludes with a comparative study of methods, difficult separations and problems in synthesis. *I. or II.; Lecture, section A, Tu., Th.; 2; section B, Tu., Th.; 5; Laboratory daily, section A, 3, 4; section B, 6, 7, or 7 and 8; section C, M., W.,* F., *6, 7, 8; (5).* Associate Professor Grindley, Mr. Sammis, Mr. Dehn and Mr. Johnston.

Required: Chemistry 1.

3b. Qualitative Analysis Minor.—Same as 3a, but requiring the first half of the semester. *(2½).* Associate Professor Grindley, Mr. Sammis, Mr. Dehn, and Mr. Johnston.

Required: Chemistry 1.

4. Elements of Organic Chemistry, Minor.—A course in organic chemistry provided more especially for students of agriculture and general science. The instruction is directed mainly to the consideration of the general characteristics and the mutual relations of certain of the more important classes of carbon compounds, partucularly the fats, the carbohydrates, and the proteids. *II. (last half); Lecture, M., W., F.; 3; Laboratory, Tu., Th., 3, 4; M., W., F., 4; (2½).* Professor Palmer and Mr. Sammis.

Required: Chemistry 1, 3b.

5a. Elementary Quantitative Analysis.—This course constitutes a general introduction to the foundation principles of gravimetric and volumetric analysis. Especial attention is given to the proper use of analytical apparatus, the sources of error in analytical processes, the means of avoiding such errors, and the methods of calculating results. Mechanical dexterity is developed, together with an intelligent knowledge of the reasons for choice of methods and procedure.

During the first twelve weeks the work is the same for all; but during the last six weeks it is differentiated in order, on the one hand, to meet the needs of those students who are preparing to study medicine, and, on the other hand, to fulfil the requirements of those who expect to graduate in chemistry. This course is preliminary to all other courses in quantitative analysis. Reading is assigned in Fresenius, Ostwald, Sutton and Blair. *I.; Lectures Tu., Th.; 5; Laboratory, 10 periods per week in two sections, Sec. A, M., W., F.; 6 7, 8; Sec. B, Tu., Th.; 6, 7, 8; Sat.; 1, 2, 3; (5).* Professor Palmer and Mr. Derby.

Required: Chemistry 1, 3a.

5b. Advanced Quantitative Analysis.—The quantitative separation and determination of the elements are discussed systemat-

ically in the lectures, and in the laboratory more or less complicated analyses of mixed salts, silicates and other refractory materials are assigned, depending somewhat on the needs of the individual student. Results of a much higher degree of accuracy than those required in 5a, will be expected. *I.; Lectures, M., W.; 2; Laboratory, 3 or 9 periods a week; (3 or 5).* Mr. DERBY.

5c. FOOD ANALYSIS.—This course includes the analysis of milk, butter, food stuffs, grains, milled products, meats, alcoholic beverages, etc. Students who have taken work amounting to five hours' credit in this course may arrange to do more advanced work along the following lines: (a) The study of methods for detecting food adulterations; (b) the separation and determination of the nitrogenous constituents of animal and vegetable foods; (c) the identification and estimation of the carbohydrate constituents of food products. *II.; Lecture, Tu.; 6; Laboratory, 4 to 12 periods a week; arrange time; (3, 5, 8 or 10).* Associate Professor GRINDLEY and Mr. PROHASKHA.

Required: Chemistry 5a.

6b. METALLURGY.—Special attention is given to the effect of impurities in ores upon metallurgical processes and finished products. Fuels, refractory materials, and fluxes are described and their value and application explained. A series of lantern slides illustrating actual plants in operation, together with specimens of furnace material and products are used in illustration. Much use is made of journals, annuals, and monographs setting forth the best practice. *I.; M., W., F.; 3; (3).* Professor PARR.

Required: Chemistry 5a.

7a. ELEMENTARY PHYSICAL CHEMISTRY.—This course, extending through one semester, is designed to give an elementary knowledge of the paramount facts of physical chemistry, and their relation to common and practical chemical problems. The instruction is by lectures and recitations, supplemented by work in the laboratory. *II.; Lectures, Tu., Th.; 4; Laboratory, 6 periods per week, Tu., Th.; 6, 7, 8; (3 to 5).* Mr. DERBY.

7b. ADVANCED PHYSICAL CHEMISTRY.—To those who have the time, Chemistry 7b affords a more thorough course in Physical Chemistry than can be included in 7a. Some attention is given to the more elementary mathematical expression of chemical laws and chemical action. An elementary knowledge of differential calculus is desirable but not required. The work includes a study of gases, liquids, and solids, their relations to each other, the properties of solutions as related especialy to boiling point, freezing point, dis-

sociation, electrical conductivity, and osmotic pressure; also thermochemistry as exhibited in specific heats, heats of fusion, of vaporization, of solution, of chemical reaction, etc., etc., finally a brief study of reaction velocity, and the relation of light, magnetism, static electricity, etc., to chemistry and chemical phenomena. *I., II.; W., F.; 3; (4).* Mr. DERBY.

7c. PHYSICAL CHEMISTRY.—This course is intended to accompany and supplement Chemistry 7b. It is entirely a laboratory course, and may be taken either at the same time as 7b. or in a succeeding year. The field covered experimentally is essentially the same as that covered in the lectures of 7b. *I., II.; arrange time; (4-10).* Mr. DERBY.

7d. ELECTRO CHEMISTRY.—The development of the foundation theories is discussed, and the growth of the modern ideas of electrolytic chemical phenomena traced; such for example as polarization, electrolytic action as related to chemical affinity, conditions governing electrolytical processes, etc. Lectures twice a week. *I., II.; by appointment; (2).*. Mr. DERBY.

7e. ELECTRO CHEMISTRY.—Laboratory work to accompany the lecture course Chemistry 7d. To be taken parallel with or subsequent to that course, and including practice in synthetic inorganic and organic preparation work. *I., II.; by appointment; (2-5).* Mr. DERBY.

Required: Physics 1, 3; Chemistry 1, 3a, 5a, 9.

7f. SPECTROSCOPIC ANALYSIS.—This course comprises lecture work with laboratory practice. The student will do practical work with the spectroscope in determining qualitatively the constituents of various mixtures, minerals and solutions by means of the spark, oxhydrogen flame, and absorption spectra. *I., II.; by appointment; (2-4).* Professor PALMER and Mr. DERBY.

Required: Physics 1, 3; Chemistry 1, 3a, 4 or 9, 5a, 7; Mineralogy 2.

8. IRON AND STEEL ANALYSIS. Analyses are made of all the constituents by both rapid or technical and standard methods. The course also includes the analysis of furnace slags and a study of the methods for decomposing ores and refractory products. *II.; daily; arrange time; (3).* Professor PARR.

Required: Chemistry 5a.

9. ORGANIC CHEMISTRY.—The work of this course consists in the detailed discussion of the characteristics of several of the more typical and simple organic compounds, followed by the briefer con-

sideration of most of the important classes of the derivatives of carbon. *Remsen's Organic Chemistry* is used as a text-book, and *Richter's Organic Chemistry* as a reference book. Must be accompanied by either 9a, 9b, or 9c. *II.; M., W., F.; 7; (3).* Professor PALMER and Mr. DERBY.

Required: Chemistry 2, 5a.

9a. ORGANIC SYNTHESIS.—Laboratory work for students of the chemical course, consisting of the preparation of typical organic compounds. *II.; arrange time; (2).* Professor PALMER and Mr. DERBY.

9b. ORGANIC ANALYSIS.—Laboratory work for students of the chemical course, consisting of either ultimate organic analysis or proximate organic analysis, or both. *I.; Laboratory, 9 or 15 periods a week; arrange time; (3 or 5).* Professor PALMER and Mr. DERBY.

9c. Laboratory work in organic chemistry for students of the medical preparatory course. A few typical organic compounds are prepared, but the work consists mainly in a study of the chemical reactions and transformations of such organic substances as are especially involved in processes of nutrition or are used in medical practice. *II.; Laboratory, 6 or 15 periods a week; arrange time; (2 or 5).* Professor PALMER and Mr. PROHASKA.

10. SANITARY ANALYSIS.—The work consists in the examination and analysis of potable and mineral waters, air, etc. *I.; M., W., F., or daily; 3, 4; (3 or 5).* Professor PALMER and Mr. KOCH.

Required: Chemistry 5a or 20.

11. INVESTIGATIONS AND THESIS.—Candidates for graduation from the chemical courses are required to devote at least three hours per day for one semester to the investigation of some selected chemical subject, the results of which are to be embodied in a thesis. The subject must be determined upon by consultation with the professors of chemistry before the first Monday in November. Between that time and the end of the holiday recess an index to the bibliography of the subject must be prepared and presented to the professor in charge of the investigation. *I., II.; 15 periods a week; arrange time; (5 each semester).* Professors PALMER and PARR, and Associate Professor GRINDLEY.

Required: Chemistry, 30 hours.

12. THEORETICAL CHEMISTRY.—A brief historical survey of the development of the science, from the earliest times to the present. The course includes the discussion of the evolution of ideas concerning fundamental principles, laws and theories of chemistry, description of the applications of chemistry in related sciences, and

the growth of important chemical industries. Lectures and assigned reading. *II.; M., W.; 2; (2).* Professor PALMER.

Required: Chemistry 4 or 9, 5a, 7a.

13a. AGRICULTURAL ANALYSIS.—This course is arranged to meet the special wants of agricultural students. The work begins with the quantitative determination and separation of the more important constituents of soils, fertilizers and agricultural products; it includes the chemical analysis of foodstuffs such as grains, fodders, dairy products and meats, as well as the analysis of fertilizers and soils. *I.; daily; 3, 4; (5).* Associate Professor GRINDLEY and Mr. PROHASKA.

Required: Chemistry 3a or 3b, 4

13b. ADVANCED AGRICULTURAL ANALYSIS.—This course is offered to students who wish to specialize in agricultural chemistry or agricultural experimentation. The work includes the analysis of butter and cheese, the complete analysis of foods, soils, plants, plant ash, rain and drain waters, and the determination of the fuel value of foods. If desirable the work may be varied to meet the special needs of the individual student. *II.; daily; 7, 8; (3-5).* Associate Professor GRINDLEY and Mr. PROHASKA.

Required: Chemistry 5a, or 13a.

14. ORGANIC CHEMISTRY.—Lectures and reading upon special chapters of organic chemistry. *I.; M., W., Th.; 7; (3).* Professor PALMER.

Required: Chemistry 9.

15. (a) and (b) METALLURGICAL CHEMISTRY.—This course includes (a) the wet assay of copper, lead, zinc, and other ores, arsenical and complex as well as the simpler forms, also the analysis of finished metallurgical products; as, commercial lead, spelter, copper, etc.; during the last half of the term the work is occupied (b) with the fire assay of lead, gold, and silver ores. Fluxes, reagents, and charges are studied in connection with various typical ores and practice given in use of the crucible and muffle furnaces and in the manipulations connected with fire assaying. *I.; M., W., F.; 3, 4, 5; (4).* Professor PARR and Mr. KOCH.

Required: Chemistry 5a; Mineralogy 1.

15. (c) and (d) ELECTRO-CHEMICAL ANALYSIS.—A study (c) of methods and practice in quantitative determination by electrolytic separation and deposition of metals and compounds, and (d) a study of the methods employed in the electrolytic separation and refining of metals, treatment of ores, etc. The laboratory work involves practice in actual separations, a quantitative check being made

on all results. *II.; M., W., F., or daily; 3, 4, 5; (3 to 5).* Professor PARR and Mr. KOCH.

Required: Chemistry 5a.

16. CHEMISTRY FOR ENGINEERS.—This course is arranged particularly for mechanical engineers. It involves the proximate analysis of coals, determination of calorific power, technical analysis of furnace gases, examination of boiler waters, lubricating oils, ets. *II.; Lecture, F.; 5; Laboratory, section B, Th.; 3, 4, 5; F.; 3, 4; section A, W.; 4, 5; Th.; 3, 4, 5; (3).* Professor PARR and Mr. KOCH.

Required: Chemistry 1.

17. INDUSTRIAL CHEMISTRY.—A laboratory course in the preparation of chemical products from raw materials. The manufacture and proving of pure chemicals, fractionation and other processes of the manufacturing chemist. *II.; daily; Laboratory 15 periods a week; arrange time; (5).* Professor PARR.

Required: Chemistry 5a, 18.

18. SPECIAL ADVANCED COURSES.—Special courses as indicated below, consisting mainly of laboratory work, may be arranged for those competent to pursue them. From 1 to 10 hours' credit will be allowed in the undergraduate courses for such work.

(a) Technical Gas Analysis, qualitative and quantitative analyses of gases and gas mixtures, including use of all the important forms of modern apparatus for rapid and accurate work. *Winkler's Industrie-Gase. I.; Lecture, M.; 2; Laboratory; arrange hours; (2-5).* Mr. DERBY.

(b) Metallurgical Chemistry. Professor PARR.

(c) Chemistry of beet sugar industry. Associate Professor GRINDLEY.

(d). Analysis of paints, oils, and varnishes. *Arrange time.* Professor PARR.

19. SEMINARY.—Reports and discussions upon assigned topics from current chemical literature. One session each fortnight during the junior and senior years. *S.; (1).* Professor PALMER.

20. QUANTITATIVE ANALYSIS.—An elementary course intended especially for such students of other departments as desire some training in the processes of quantitative analysis, but have not the time or the opportunity to enter the regular course in this subject. The work may vary in character, to some extent, according to the need of the individual student. *I. or II.; any two or four days; arrange time; (2 or 3).* Mr. DERBY.

21. PROXIMATE ORGANIC ANALYSIS. Analysis and valuation of

various commercial organic materials and products: (a) Pharmaceutical assaying, including the valuation of drugs and various pharmaceutical preparations, tinctures, extracts, etc., etc.; (b) analysis of proprietary articles, medicines, pills, ointments, salves, etc.; (c) fats, waxes, oils, perfumes, flavoring extracts; (d) dyestuffs. Analysis, tests and identification of raw materials, coloring matters and dyes upon the fiber. (e) Rubber, paper, fibers, inks, glue, etc. *Allen's Commercial Organic Analysis, Sadtler and Trimble's Pharmaceutical Chemistry. I. or II.; arrange time; (5 or 10).* Professor PALMER and Mr. PROHASKA.

22a. PHOTOGRAPHY.—Offered to engineering students and others who wish to obtain a general knowledge of photography. In this course the general subject is covered by lectures and laboratory work, the latter varying to some extent to suit the special line of work that the student expects to follow. *I.; Lecture, Tu., Th.; 6; Laboratory, 4 periods, time to be arranged; (2).* Professor PARR and Mr. WILDER.

Required: Physics 1, 3; Chemistry 3b, unless otherwise arranged.

22b. PHOTOGRAPHY.—Offered especially for scientific students and others desiring a more thorough knowledge of photography than is offered in course 22a. This course is of special value to any intending to teach those branches in which the optical lantern is extensively used. The early part of the course is devoted to a general review of the methods and practices of photography, with sufficient laboratory work to make the student familiar with the same. Following this some time is devoted to the optical lantern, with sufficient practice on the part of the student to familiarize him with the manipulation of such apparatus. This is accompanied by instruction in the making and use of lantern slides. Instruction in photo-micrography also has a place in this course, and students so desiring may pursue such work as far as time and the facilities of the department will allow. *II.; Lecture, M., W., F.; Laboratory, 6 periods, time to be arranged; (3).* Professor PARR and Mr. WILDER.

Required: Chemistry 3a; Physics 1, 3. In the College of Science, when recommended by Dean, these requirements may be omitted.

22c. REPRODUCTION OF DRAWINGS, ETC.—Provision is here made for a general course in the methods of reproduction made use of in the engineering professions. Blue-printing, black-printing, hectographing, and the other methods in use are explained by lectures and laboratory work. No distinct credit is given for such work, but the

time so spent is deducted from that required in other courses, and so credited to the student doing the work. This work is offered to such students as may be required to do it as a part of some regular course, the time so spent to be determined by the instructor having such regular course in charge, and to students who elect it with approval of the proper authority. Mr. WILDER.

23 (a) and (b). HOUSEHOLD CHEMISTRY.—The first semester is largely devoted to practice in general analytical methods, both gravimetric and volumetric. The second is occupied chiefly with the examination of materials used in the household. Analyses are made of baking powders, vinegars, syrups, sugars, soaps, soap powders, wall papers, etc. *I., II.; daily; 6, 7; (5).* Associate Professor GRINDLEY and Mr. PROHASKA.

Required: Chemistry 3a.

24. TOXICOLOGY.—Mainly laboratory work upon the detection and estimation of the more common poisons, organic and inorganic, wall papers, etc. *I., II.; daily; 6, 7; (5).* Professor PALMER and Mr. KOCH.

Required: Chemistry 2, 3b, 5a, and either 4 or 9.

25. URINALYSIS.—Chemical and microscopic examination of urine. *I. or II.; Laboratory 6 periods, arrange time; (2).* Mr. PROHASKA.

Required: Chemistry 2, 3b, 5a.

COURSES FOR GRADUATES

101. ORGANIC CHEMISTRY.—Special investigations in the aliphatic or in the aromatic series.

102. INORGANIC CHEMISTRY.—Research work in general inorganic chemistry, including the critical and constructive study of methods of analysis, both quantitative and qualitative.

103. PHYSICAL CHEMISTRY.—Investigation of special problems, including also thermo-chemical research.

104.—CHEMISTRY OF FOODS.—Investigations of the composition, fuel value, digestibility, and dietary value of foods and the chemical changes involved in cooking.

105. AGRICULTURAL CHEMISTRY. Special investigations in the field of agricultural chemistry, including the chemistry of plants, foods, soils, and rain, drain, and ground waters.

106. RESEARCH IN METALLURGICAL CHEMISTRY.—(a) Action of solvents in extraction of gold and silver from their ores. (b) Methods of analysis of ores and products.

107. Investigation of Water Supplies.—In connection with State Water Survey.

108. Investigation of Fuels.—
   (a) Heating power, calorimetric methods.
   (b) Adaptation of bituminous coal to gas manufacture, purification of products.
   (c) Coke and by-products.

109. Special Problems in Industrial Chemistry.—
   (a) Corrosion and scaling of steam boilers.
   (b) Purification of feed waters.
   (c) Cements and mortars.
   (d) Paints and pigments.

CIVIL ENGINEERING

4. Railroad Engineering.—In the field practice the class makes preliminary and location surveys of a line of railroad of sufficient length to secure familiarity with the methods of actual practice. Each student makes a complete set of notes, maps, profiles, calculations, and estimates. The principles of economic location and the construction of railways are considered. A study is made of railway appliances and of maintenance-of-way practice. *Nagle's Field Manual Railroad Engineers, and Tratman's Track. I.; section A, Tu., Th., S.; 2, 3, 4; W., F.; 2; section B, M., W., F.; 6, 7, 8; Tu., Th.; 6; (5).* Mr. Kuehn.

Required: Civil Engineering 21, 22, 23.

4a. Railroad Engineering.—The first eleven weeks of course 4 are for students in municipal and sanitary engineering. *(3).*

5. Masonry Construction.—The students have experiments in the masonry laboratory, in testing cement, mortar, stone, and brick. *Baker's Masonry Construction. I.; M., Tu., W., Th., 1; Laboratory F., 6, 7; (5).* Professor Baker.

Required: Theoretical and Applied Mechanics 2; General Engineering Drawing 1, 2.

6. Geodesy.—Geodesy is taught by lectures and assigned reading. *II.; W.; 6, 7; (1).* Mr. Kuehn.

Required: Math. 3; General Engineering Drawing 1, 2; Civil Engineering 21, 22, 23; Descriptive Astronomy 4.

10. Surveying.—For students in the courses of architecture, architectural engineering, electrical engineering, and mechanical engineering. Areas with chain and compass, U. S. public land surveys, and principles of reëstablishing corners; use of transit in finding distances, areas, and in laying out buildings; use of the

level in finding profiles and contours. *Baker's Engineers' Surveying Instruments. II.; section A (for Mech. Eng'rs), M., Tu., W.; 3, 4; section B (for Arch. and Arch. Eng'rs), Th., F., S.; 3, 4; (3).* Mr. KUEHN.

Required: Math. 4; General Engineering Drawing 1, 2; Physics 1, 3.

12. BRIDGE ANALYSIS.—Instruction and practice are given in the computation of the stresses in the various forms of bridge trusses, by algebraic and graphical methods, under different conditions of loading. *Johnson's Modern Framed Structures. I.; daily; 2, 3; (5).* Professor BAKER.

Required: Theoretical and Applied Mechanics 2; Architecture 5.

13. BRIDGE DETAILS.—The student makes a tracing of a shop drawing of a bridge, and then makes a critical report upon each element of the design and computes the cost. Afterward a comparative study is made of the several forms of details employed by leading designers. This must be taken with course 12 above during the first semester, and with course 14 below during the second semester.

Required: Civil Eng'g 12 and free-hand sketches, with dimensions, showing full details of a bridge measured by the student.

14. BRIDGE DESIGN.—Each student designs a bridge, proportioning the sections and working out the details, and afterward makes a complete set of drawings. *II.; daily; 1, 2; (5).* Professor BAKER.

Required: Civil Engineering 12, 13.

14a. BRIDGE DESIGN.—Course 14 above three times a week for Municipal and Sanitary Engineering students. *II.; M., W., F.; 1, 2; (3).*

15. TUNNELING.—This subject is given by lectures and assigned reading. Students are required to make written reports upon the methods employed in particular tunnels. Some time is given to practice in boring wells, dredging, quarrying, and sub-aqueous blasting. *II.; W.; 6, 7; (1).* Mr. KUEHN.

Required: Math. 1, 3, 6; General Engineering Drawing 1, 2; Mechanical Engineering 1, 16, 17; Chemistry 1; Physics 1, 3.

16. ENGINEERING CONTRACTS AND SPECIFICATIONS.—A study is made of the fundamental principles of the law of contract, and of examples of the general and technical clauses of various kinds used in engineering specifications. *Johnson's Engineering Contracts and Specifications. II.; W., F.; 4; (2).* Assistant Professor KETCHUM.

Required: Civil Engineering 5, 12, 13; Municipal and Sanitary Engineering 2, 3.

17. RAILROAD STRUCTURES.—Instruction is given by lectures and references to standard authorities. Current practice is studied by the examination of existing structures and by means of a collection of the standard drawings of leading railroads. *II.; Tu., Th.; 3, 4; (2).* Assistant Professor KETCHUM.

Required: Civil Engineering 4.

21. SURVEYING.—Instruction is given by means of recitations, lectures, field and office work in the theory, use and adjustment of the compass, level transit, plane table, and sextant. The field work includes the determination of distances by pacing and with the chain and tape; the determination of areas with the compass; transit and plane table; the finding of profiles with the level. A careful study is made of the U. S. land survey methods, and court decisions relating to the re-establishment of corners, boundaries, etc. Problems are assigned in the re-location of boundaries, partition of land, interpretation of deeds and in city and farm surveying. Some time is devoted to topographic drawing. *Baker's Engineers' Surveying Instruments,* and *Pence and Ketchum's Surveying Manual. I.; daily; section A, 1, 2; section B, 6, 7; (4).* Assistant Professor KETCHUM.

Required: General Eng'g Drawing 1, 2; Math. 3.

22. TOPOGRAPHIC SURVEYING.—The theory and use of the stadia and other instruments used in making a topographic survey are considered, as are also the methods of topographic surveying. A complete topographic survey based on a system of triangulation is executed, including the calculations, and platting and completing the map. Some time is given to the precise measurement of bases and angles. Instruction is given in blue-printing and duplicating drawing. *Wilson's Topographic Surveying and Pence and Ketchum's Surveying Manual. II; M., Tu., W., Th.; section A, 1, 2; section B, 6, 7; (4).* Assistant Professor KETCHUM.

Required: Civil Eng'g 21; Gen. Eng'g Drawing 1, 2; Math. 3.

23. RAILROAD CURVES.—A study is made of the geometry of the circle as applied to railroad curves and of the methods of locating curves in the field. *Nagle's Field Manual for Railroad Engineers. II.; F.; section A, 1, 2; section B, 6, 7; (1).* Mr. KUEHN.

Required: Civil Eng'g 21, 22; Gen. Eng'g Drawing 1, 2; Math. 3.

COURSES FOR GRADUATES

All primary unless otherwise stated.

101. Location and Construction.

102. Railway Track and Structures, and their Maintenance.

103. Yards and Terminals.
104. Motive Power and Rolling Stock.
105. Signal Engineering.
106. Railway Operation and Management.
107. Bridge Designing.
108. Cantilever and Swing Bridges.
109. Metallic Arches.
110. Metallic Building Construction.
111. Roof Construction.
112. Stereotomy.
113. History of the Development of Bridge Building—Secondary.
128. Practical Astronomy.
129. Description of Work Done.
130. Critical Description of Engineering Construction.
131. Translation of Technical Engineering Works from French or German.
132. Any Primary in Theoretical and Applied Mechanics or Municipal and Sanitary Engineering.
133. Any Primary in Mathematics, Mechanical Engineering, or Electrical Engineering—Secondary.
134. Indexing of Civil Engineering Periodical Literature—Secondary.

DAIRY HUSBANDRY

1. MILK.—The character and composition of normal milk; standardizing milk and cream; proper precautions to prevent contamination; the care and uses of milk; practice with the Babcock test and the lactometer, supplemented by lectures and reference readings, and by laboratory experiments upon contamination of milk. *I.; daily; 1, 2; (5).* Mr. FRASER and Mr. ERF.

2. DAIRY CATTLE.—The cow as a factor in the economic production of milk, butter and cheese; difference in the efficiency of individual animals; establishment of the dairy herd by selection and grading with pure bred sires; the principal characteristics of the dairy cow, with extensive practice in judging; the various breeds adapted to dairy purposes, their history and characteristics, with practice in judging by both dairy and breed standards. *II.; first half; daily; 1, 2; (2½).* Mr. FRASER.

3. DAIRY FARM MANAGEMENT.—Soiling and pasturing dairy cows; crops adapted to the dairy farm, and best methods of converting these into milk; the place and value of the silo on the dairy farm and the best methods of handling and feeding ensilage; a study

of the best and most economical systems of feeding, together with the care and raising of calves; housing and general care of the herd; arrangement, ventilation, and care of dairy barn. *II.; second half; daily; 1; (2½).* Mr. FRASER.

4. CREAM SEPARATION.—A critical study of different systems of cream separation as to rapidity and efficiency, and the comparison of different machines, especially centrifugal separators; designed to be taken in conjunction with course 5. *II.; three days per week; arrange time; (2½).* Mr. ERF.

5. BUTTER MAKING.—Ripening the cream; churning, working packing, and scoring of butter; designed to be taken in conjunction with course 4. *II.; three days per week; arrange time; (2½).* Mr. ERF.

6. CHEESE MAKING.—Practice in making, curing, and judging cheddar and fancy cheese. *I.; 5 hours, 3 days per week; (5).* Mr. ERF.

7. FACTORY MANAGEMENT.—Coöperative and company creameries and cheese factories; planning, construction, equipment, and operation of plants, including care of engines and boilers. *I.; second half; 3; (2½).* Mr. ERF.

8. CITY MILK SUPPLY.—Sources of milk, together with methods of shipping, handling, and distributing, and of securing a healthful product for large cities. *II.; first half; daily; 8; (2½).* Mr. FRASER.

9. COMPARATIVE DAIRYING.—A study of the dairy systems and practice of different countries, including the care and management of dairy cattle. The principal dairy products of the different countries and the methods of handling and sale, particularly the preparation of milk for direct consumption. The more important conditions, historical and present, and local and inherited influences affecting dairy practices. Recitations, reference readings, and illustrated lectures. *II.; second half; daily; 8; (2½).* Mr. FRASER.

Required: 10 hours' credit in Dairy Husbandry.

10. JUDGING DAIRY PRODUCTS.—A study of the composition and variations of milk; detection of adulterations by means of the Babcock test and lactometer; standardizing milk and cream; methods of detection of impure and unwholesome milk; where and to what extent milk becomes contaminated and methods of prevention; scoring of butter and cheese. *II.; second half; daily; 3; (2½).* Mr. FRASER and Mr. ERF.

11. DAIRY BACTERIOLOGY.—A careful study of the distribution of bacteria as determined by a bacteriological analysis of air in the

open field, dairy rooms, and dairy barns under different conditions, showing where and to what extent milk may become contaminated through the air and from the cow during the process of milking and subsequently; also how this contamination may be largely avoided by proper methods. The effect of bacteria on milk and rapidity with which it becomes sour after being produced under different degrees of cleanliness and held at different temperatures. The part that bacteria play in the ripening of cream and making of butter and in the manufacture and ripening of cheese. *II.; daily; 6, 7; (5).* Mr. FRASER.

Required: Botany 5.

12 INVESTIGATION AND THESIS.—Subject arranged with instructor. *(5 to 10).* Mr. FRASER and Mr. ERF.

DRAWING, GENERAL ENGINEERING

1a. LETTERING.—Plain and ornamental alphabets; free-hand and mechanical lettering; titles and title pages. *Reinhardt's Lettering. I.; alternate days; 1, 2, 3 or 6, 7, 8; (1).* Assistant Professor PHILLIPS, Mr. KABLE, and Mr. COFFEEN.

1b. ELEMENTS OF DRAFTING.—Geometrical constructions; orthographic, isometric, and cabinet projections. *Tracy's Mechanical Drawing. I.; alternate days; 1, 2, 3 or 6, 7, 8; (3).* Assistant Professor PHILLIPS, Mr. KABLE, and Mr. COFFEEN.

Required: Drawing, General Engineering 1a.

1c. SKETCHING AND WORKING DRAWINGS. Architectural sketch plans and details; bridge details; machines, machine parts, and mechanisms; working drawings; drawings finished in color and right line shading. Lectures on drafting instruments, materials; computing instruments; office methods, and reproduction processes. *Lectures and notes. I.; alternate days; 1, 2, 3 or 6, 7, 8; (1).* Assistant Professor PHILLIPS, Mr. KABLE, and Mr. COFFEEN.

Required: Drawing, General Engineering 1a, 1b.

2. DESCRIPTIVE GEOMETRY.—Problems relating to the point, line, and plane. The generation and classification of lines and surfaces; planes tangent to surfaces of single and double curvature; intersections, developments, and revolutions. *Church's Descriptive Geometry. II.; alternate days; 1, 2, 3 or 6, 7, 8; (5).* Assistant Professor PHILLIPS, Mr. KABLE, and Mr. COFFEEN.

Required: Drawing, General Engineering, 1a, 1b, 1c.

3. ADVANCED DESCRIPTIVE GEOMETRY.—For students making a specialty of mathematics. Curved lines of the higher orders; higher single curved, warped, and double curved surfaces.

Church's Descriptive Geometry, with references to *Warren's General Problems from the Orthographic Projections of Descriptive Geometry. II.; arrange hours.* Assistant Professor PHILLIPS.

Required: Drawing, General Engineering 2.

ECONOMICS

1. INTRODUCTORY COURSE.—This is a beginners' course, consisting of two parts:

a. PRINCIPLES OF ECONOMICS.—This course is introductory to the more advanced courses. Attention is confined to the underlying principles of the science. *I.; M., W., F.; section A, 5; section B, hours to be arranged; (3).* Assistant Professor HAMMOND.

b. ENGLISH ECONOMIC HISTORY.—This course, which begins with the Norman Conquest, traces the economic development of a great commercial and industrial nation to the present time. Special attention is directed to the evolution of modern industrial institutions. The course should accompany course *a* and is required of all students in the political science group. *I.; Tu., Th.; 5; (2).* Assistant Professor HAMMOND.

Required: At least 30 hours of University work.

2. PRINCIPLES OF ECONOMICS.—This is a course in general economics offered primarily to junior and senior students of high standing in the colleges of agriculture, engineering, science, and law. Emphasis is laid on the practical side of economic questions. *II.; M., W.; 7; (2).* Professor KINLEY.

Required: Two years of University work.

3. MONEY AND BANKING.—This course may be taken either for two or for three hours' credit. The two hours' portion is devoted to an elementary study of the history and theory of money and banking, with special reference to the United States. The third hour is devoted to the consideration of special topics of a more difficult character in the theory of prices, the "money market" and the foreign exchanges, government paper money, etc. The third hour may not be taken alone. *II.; M., W., F.; 5; (2 or 3).* Professor KINLEY.

Required: Economics 1 or 2.

4. FINANCIAL HISTORY OF THE UNITED STATES.—This course deals with the growth and management of the national debt, national taxation and monetary policy. A brief outline of the main points in this history, from the adoption of the constitution, is first given. Attention is then directed to a detailed study of particular periods. *I., II.; Tu., Th.; 5; (2).* Professor KINLEY.

Required: Economics 1 or 2. For 1901-1902 this course will be replaced with course 22.

5. PUBLIC FINANCE.—This course consists of a critical comparative study of financial theories and methods. Special attention is directed to American conditions. Public expenditure and its relation to the various sources of revenue; taxation, its theory, incidence, and methods; public debts, financial administration, and budgetary legislation, are among the subjects discussed. *II.; M., W., F.; 8; (3).* Assistant Professor HAMMOND.

Required: Economics 1 or 2.

7. INTERNATIONAL TRADE.—This course discusses the principles underlying international trade, and treats briefly the various protection theories and the history of European and American tariffs. Lectures, assigned readings and discussions. *II.; Tu., Th.; (2).* Assistant Professor HAMMOND.

Required: Economics 1 or 2. (Not given in 1901-1902.)

8. THE TRANSPORTATION PROBLEM.—This course deals with the problems of transportation, especially by railways, in their economic and social aspects. A comparative study is made of the development, management, and regulation of railways in Europe and the United States. Special attention is given to the problem of rate-making. Lectures, reports, and discussions. *II.; M., W.; 7; (2).* Assistant Professor HAMMOND.

Required: Economics 1 or 2.

9. AGRICULTURAL PROBLEMS. This course includes a discussion of the economic principles underlying the science of agriculture, a short history of the development of agriculture in this country, and a study of the problems and tendencies of American farming. Lectures and quizzes. *I.; W., F.; 2; (2).* Assistant Professor HAMMOND.

Required: Economics 1 or 2. (Not given in 1901-1902.)

11. STATISTICS.—This is a short course recommended to all who intend to take the advanced courses in economics. It is of a practical character, and is intended to furnish a knowledge of the statistical method, its limitations and abuses, and to enable the student to use intelligently government reports, statistical publications, trade papers, etc. Lectures, reports, and discussions. *II.; Tu., Th.; 3; (2).* Assistant Professor HAMMOND.

Required: Economics 1a or 2.

12. THE LABOR PROBLEM.—This course is a study of the labor movement and its social significance. The condition of working men, their legal and economic relations to their employers, wages,

strikes, arbitration, labor organizations, and similar topics are studied. and serve to show the general character of the course. Readings, lectures, and quizzes. *I.; M., W., F.; 5; (3).* Professor KINLEY.

Required: Economics 1 or 2.

14. THE DISTRIBUTION OF WEALTH.—This course deals with the problem of distribution both in theory and practice. The facts of distribution of wealth and of income are first discussed, and attention is then turned to a comparison of theories of wages, interest and profits. An attempt is made to show the relation of the existing distributive process to social prosperity and progress. *I., II.; Tu., Th.; 7; (2).* Professor KINLEY.

Required: Economics 1a and 1b, or 2 and 1b. The course is open to students of law who have had "Real Property" and "Contracts."

15. PROBLEMS OF PAUPERISM AND CRIME.—This course begins with the history of poor relief in Europe and the United States. As full a discussion of the various methods of reform and prevention is given as the time will permit. *I.; Tu., Th.; 2; (2).* Assistant Professor HAMMOND.

Required: Two years of University work.

17. SOCIOLOGY.—This course comprises an elementary presentation of social principles and phenomena, and a brief discussion of some of the recent theories advanced to explain the growth and structure of society. *II.; Tu., Th.; 2; (2).* Assistant Professor HAMMOND.

18. THE MONOPOLY PROBLEM.—This course is a more detailed study of a portion of the field of course 14. It discusses the economic aspects of monopoly, the limits of competition, combinations and "trusts," and the relation of monopoly to the public welfare. *I.; M., W., F.; 5; (3).* Professor KINLEY.

Required: Economics 1 or 2. (Not given in 1901-1902.)

19. ECONOMIC SEMINARY.—Advanced students will be formed into a seminary for investigation and for the study of current economic literature. Students who write their theses in economics must do so in connection with the seminary work. *I., II.; arrange time; (4 for the year).* Professor KINLEY and Assistant Professor HAMMOND.

22. THE ECONOMIC HISTORY OF THE UNITED STATES.—This course is devoted to the study of the industrial and commercial development of our country. It is not primarily statistical, but rather an inquiry into the trend of our development and into the

physical economic, and political forces which have directed and controlled it. The physical conditions under which our people have worked, the movement and character of our population, the interaction of our political and our economic life, our position in the world's industry and commerce, the problem of territorial expansion in its relation to our industrial and commercial growth, are some of the topics to be discussed. In the second semester attention will be given also to the history of some specific great industries, such as the iron and steel industry, cotton manufacture, the shipping question, etc. The course, if taken at all, must be taken through the year. *I., II.; Tu., Th.; 5; (2).* Professor Kinley.

Required: Economics 1a or 2, antecedently or concurrently.

COURSES PRIMARILY FOR GRADUATES

(These courses are open to students who have had one full year's work in economics.)

101. The Theory of Value.—This is an historical and critical study of theories of value.

102. The History of Economic Thought.—In this course portions of the works of economic writers since the 16th century are read. Lectures are given tracing the course of economic thought in its relation to the prevalent philosophy.

103. Taxation.—A detailed study of state and local taxation in the United States.

EDUCATION

1. Principles of Education.—The basis for a scientific theory of education critically considered from the standpoint of the individual in his relation to the mass. The developing powers of the child are here studied in their bearing upon social efficiency. The more general problems of genetic psychology are considered, as well as those essential to the theory and art of teaching. The problems of school education. The making of a course of study. Interrelation of school studies. Method in teaching. The recitation. Examinations. Grading and promotion. The various branches, considered as school subjects. Lectures, essays, and recitations. *I.; daily; 2; (5).* Professor Dexter.

Required: Two years of University work.

2. History of Education.—The development of educational theory and practice in their relation to the history of civilization. The educational problems of the earliest culture nations. The old and Latin-Greek education. Ideals and methods at Rome. The early

Christian schools. Significance of scholasticism. The growth of the universities. The reformation and its results. The lives and influence of Luther, Erasmus, Milton, Locke, Comenius, Sturm, Rosseau, Pestalozzi, Froebel, Herbart, Spencer, and Horace Mann. *II.; daily; 2; (5).* Professor DEXTER.

Required: Two years of University work.

3. GENERAL METHOD.—Application of the principles of education to the art of teaching; an examination of De Garmo's "Essentials of Method" and McMurry's "Method of the Recitation," with related topics. *I.; M., W., F.; 3; (3).* Assistant Professor BROOKS.

Required: Education 1, and two years of University work.

4. CONTEMPORARY EDUCATIONAL CONDITIONS AND MOVEMENTS IN THE UNITED STATES.—In this course are studied critically the educational tendencies of to-day. Besides the broader meaning of the whole movement, the school systems of our larger cities and towns are carefully studied. *I.; Tu., Th.; 4; (2).* Professor DEXTER.

Required: Education 1 or 2.

5. A COMPARATIVE STUDY OF THE SECONDARY SCHOOLS OF FRANCE, GERMANY, ENGLAND, AND AMERICA.—In this course are considered the French Lycées, the German Gymnasia, the English Board, Public, and Church Schools, and the American Academies and High Schools. Their resemblances and differences are carefully noted as well as the conditions which have led up to each. *II.; Tu., Th.; 4; (2).* Professor DEXTER.

Required: Education 1 or 2.

6. HIGH SCHOOL ORGANIZATION AND MANAGEMENT.—A discussion of the essential elements of a good high school together with a consideration of the conditions existing in Illinois as determined by the work of high school visitation; proposed solutions of the many problems of secondary education; desired lines of progress; building up of an accredited high school; equipment; program making; courses of study; electives; discipline. *I.; M., W., F.; 7; (3).* Assistant Professor BROOKS.

Required: Education 1 and three years of University work.

7. SPECIAL METHODS IN SCIENCE AND MATHEMATICS.—Position of science in the curriculum; discussion of general methods in science; special methods with reference to botany, zoölogy, physics, chemistry, and other sciences, in so far as time will allow; laboratory equipment; purchasing of apparatus; selection and use of material; use of laboratory manuals; text-books; discussion and illustration of

methods in algebra and geometry. *I.; Tu., Th.; 3; (2).* Assistant Professor Brooks.

Required: Education 1 and three years of University work.

8. Special Methods in Language and History.—The application of the general principles of method to the teaching of language and history; special methods in English composition and rhetoric and the English classics required for admission to the University; methods in language teaching, especially Latin and German; content and method in history teaching. *I.; Tu., Th.; 7; (2).* Assistant Professor Brooks.

Required: Education 1 and three years of University work.

9. Psychology Applied to the Art of Teaching.—A brief course in genetic psychology, together with a critical study of the mental processes of sense perception, the formation of concepts, attention, suggestion and imitation in their relation to the teaching process. *II.; M., W.; 4; (2).* Professor Dexter

Required: Two years of University work.

10. Seminar in Education.—The subject for 1901-1902 is *School Supervision.* The problems of the modern city superintendent from both the educational and business standpoints will be considered. Special attention is given to the problems of school architecture and sanitation. Discussions, reports, and lectures by those actively engaged in the work of superintendency. *I., II.; arrange time; (1).* Professor Dexter and Assistant Professor Brooks.

COURSES FOR GRADUATES

In these there is sufficient elasticity to meet the wants of individual students. Advanced work is offered in the history and in the philosophy of education, in which original sources are consulted and special periods critically studied. Experimental and statistical problems in education and child study are also directed. Candidates for advanced degrees are expected to present theses representing original work of merit, ready for publication.

ELECTRICAL ENGINEERING

1. Electrical Engineering.—Lectures accompanied by laboratory practice (Electrical Engineering 21); for students in other courses of engineering and in architecture. Principles of electrical machinery, selection, installation, operation and testing, distribution and applications of electric power. *II.; Lecture, Tu., Th.; 2; Laboratory, arrange one period; (3).* Professor Aldrich.

Required: Physics 1, 3; Mathematics 9.

2. Dynamo-Electric Machinery.—Lectures on the principles of construction, operation, and characteristics of dynamo-electric machinery, with special reference to direct current types. *I., last six weeks; II., first nine weks; M., W., F.; 1; (2½).* Assistant Professor Browne.

Required: Electrical Engineering 3; Physics 4.

3. Electricity and Magnetism.—A course of lectures and recitations on the elements of the mathematical theory of electricity and magnetism. Special attention is given to establishing and illustrating by problems the laws and principles of fundamental importance to electrical engineers. *I., first twelve weeks; M., W., F.; 1; (2).* Associate Professor Esty.

Required: Physics 1, 3; Mathematics 9.

4. Telegraphy and Telephony.—Lectures and recitations. Methods of telegraphy,—land and submarine,—the theory of the telephone, and telephone engineering. *II., second nine weeks; M., W., F.;* 1; *(1½).* Associate Professor Esty.

Required: Physics 4; Electrical Engineering 3.

5. Alternating Currents and Alternating Current Transformer.—Lectures and recitations. A mathematical and graphical treatment of the principles of periodic currents, with the theory of the transformer and applications to practice. *I.; Tu., Th., F.; 1, 4; (3).* Associate Professor Esty.

Required: Physics 4; Electrical Engineering 3.

6. Alternating Current Machinery.—Lectures on the principles of construction, operation and characteristics of single-phase and polyphase alternating current machinery and rotary converters. *I.; M., W., F.; 2, 3; (3).* Assistant Professor Browne.

Required: Electrical Engineering 2 and 5.

7. Electrical Distribution.—Lectures and practice. Methods and economics of distribution of electric energy for light and power, by direct and alternating currents; insurance rules and regulations; testing distributing circuits. *I., first nine weeks; M., F.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 2 and 3.

8. Electric Power Transmission.—Lectures. The long distance transmission of power by electricity, from generating stations operated by steam and water power, for utilization in lighting, traction, mining, and manufacturing work; economics of project; construction, maintenance and protection of lines; comparison with other systems. *I.; second nine weeks; M., F.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 5 and 7.

9. Electric Lighting.—Lectures and practice. Manufacture, care, and use of arc and incandescent lamps; economics of installation, and operation of electric lighting systems by central and by substation supply; commercial photometry. *I.; first nine weeks; Tu., Th.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 7 and 26.

10. Electric Traction.—Lectures and practice. Principles and economics of construction, installation, electrical distribution, management, and testing of electric traction system; applications to surface and elevated electric roads and to mine haulage. *I.; second nine weeks; Tu., Th.; 2; (1).* Professor Aldrich.

Required: Electrical Engineering 7.

11. Electric Light and Power Plants.—Lectures and practice. Principles and economics of location of site; selection, arrangement, and subdivision of generating units; installation, management, and testing of central and sub-stations for electric light, traction, mining, and manufacturing work. *II.; M., F.; 2; (2).* Professor Aldrich.

Required: Electric Engineering 6.

12. Electro-Metallurgy.—Lectures on the commercial application of electrolysis; refining metals; treatment of sewage; the electric furnace; electrotyping; electro-plating. *II.; Tu., Th.; 4; (2).* Assistant Professor Browne.

Required: Chemistry 1; Physics 4.

13. Seminary.—A weekly meeting is held in the department reading room for discussion of topics from the current journals of theoretical and applied electricity. Papers on any original work doing in the department are read and discussed. A card catalog of references to the leading electrical journals is maintained by the coöperation of members of the seminary with the department. *I.; Tu.; 7, 8; II.; Tu.; 7, 8; (1).* Associate Professor Esty.

Required: Physics 4; Electrical Engineering 2, 3, 22, 31.

14. Alternating Currents.—Lectures on the theory and applications of alternating electric currents, and alternating current phenomena. Elective for undergraduates. *II.; arrange time; (2).* Associate Professor Esty.

Required: Electrical Engineering 5.

21. Electrical Engineering Laboratory.—Arranged for students in other courses of engineering and in architecture. Care, operation, inspection, and testing electrical machinery, and distributing circuits. *II.; section A, M.; 6, 7, 8; section B, F.; 6, 7, 8;*

section C, Th.; 6, 7, 8; (1). Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Enginering 1 or 2.

22. ELECTRICAL ENGINEERING LABORATORY.—Experimental study of direct current dynamos, motors, and accessory apparatus; theory and care of instruments; reduction of observations; individual and comparative tests; complete tests such as are made in the testing laboratories of representative manufacturing establishments. *II.; section A, W.; 6, 7, 8; B, Tu.; 1, 2, 3; C, Th.; 1, 2, 3.* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 2.

23. ELECTRICAL ENGINEERING LABORATORY.—Experimental study of alternating current instruments, dynamos, motors, and transformers; regulation, efficiency, temperature, and insulation tests. *I.; Tu.; II., M.; 3, 4, 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 22 and 6.

24. ELECTRICAL ENGINEERING LABORATORY.—Advanced direct and alternating current testing work; special problems for investigation; plant, line, and motor service testing. *II.; W.; 3, 4, 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 23.

25. POLYPHASE TESTING.—Advanced course for seniors in Group I., Electrical Engineering. A critical study and investigation of polyphase machinery and systems; individual and aggregate tests. Elective. *I.; Th.; 3, 4, 5; (1).* Professor ALDRICH and Assistant Professor BROWNE.

Required: Electrical Engineering 23.

26. PHOTOMETRY.—Laboratory work with descriptive lectures. Principles of photometry with candle power, life, and efficiency tests of incandescent and arc lamps. *I.; M.; section A, 4, 5; section B, 8, 9; (1).* Assistant Professor BROWNE.

Required: Electrical Engineering 9.

31. ELECTRICAL DESIGN.—Design and drafting, with supplementary lectures on the design, calculation, and construction of electromagnetic mechanisms, and dynamo-electric machines. This course is introductory to the fuller courses of the following year. *II.; M.; 6, 7, 8; (1).* Associate Professor ESTY.

Required: Electrical Engineering 2, 3; Physics 4.

32. ELECTRICAL DESIGN.—Design, drafting, lectures. A continuation of the preceding. Includes the design and construction of multi-polar generators and motors, alternating current generators,

motors, and transformers. *I.; W.; 3, 4, 5; II.; Th.; 1, 2, 3; (1).* Associate Professor Esty.

Required: Electrical Engineering 2, 6, 22, 31.

33. Electrical Design.—Design and drafting. Supplements Electrical Engineering 11, and takes up the *ensemble* design of an electric light or power installation, including plans, specifications, and estimates. *II.; F.; 3, 4, 5; (1).* Associate Professor Esty.

Required: Electrical Engineering 6, 8, 9, 10, 11.

COURSES FOR GRADUATES

Primary

101. Theory of Alternating Currents.
102. Dynamo-Electric Machinery.
103. Alternating Current Machinery.
104. Electrical Transmission of Power.
105. Electric Light and Power Plants.
106. Electro-Metallurgy.
107. Polyphase Testing.
108. Electrical Engineering Research.
109. Electrical Design.

Secondary

111. Theory of Equations.
112. Theory of Determinants.
113. Least Squares.
114. Differential Equations.
115. Calculus of Variations.
116. Spherical Harmonics.
117. Potential Function.
118. Advanced Physical Measurements.
119 Mathematical Physics.
120. Mathematical Theory of Electricity and Magnetism.
121. Physical Chemistry.
122. Metallurgical Chemistry.
123. Electro-Chemistry.

ENGLISH LANGUAGE AND LITERATURE

1. General Survey of English Literature.—*I.; daily; section A, 2; section B, 4; section C, 6; II.; 4; (5).* Miss Carson.

2. Prose Writers of the Eighteenth and Nineteenth Centuries.—*II.; daily; section A, 2; section B, 6; (5).* Miss Carson.

Required: English 1.

3. Nineteenth Century Poetry.—*I., II.; M., W., F.; 3; (3).* Associate Professor Jayne.

Required: English 1.

4. Prose Writers of the Sixteenth and Seventeenth Centuries.—*I., II.; Tu., Th.; 3; (2).* Professor Dodge.

Required: English 1 and 2. [Not given in 1901-1902.]

4a. Non-Dramatic Poetry of the Sixteenth and Seventeenth Centuries.—*I., II.; Tu., Th.; 3; (2).* Professor Dodge.

Required: English 1 and 2. [The second semester may be taken without the first.]

5. Shakspere and History of the Drama.—Primarily for graduates. *I., II.; M., W., F.; 2; (3).* Professor Dodge.

Required: English 1, 2 and either 3 or 4. [The second semester may be taken without the first.]

6. History of English Criticism.—Primarily for graduates. *I., II.; Tu., Th.; 4; (2).* Professor Dodge.

Required: English 1, 2 and either 3 or 4.

7. Seminary: English Fiction.—Open only to senior and graduate students. *I., II.; Tu.; arrange time; (1).* Associate Professor Jayne. [Not given in 1901-1902.]

8. Old English (Anglo-Saxon) Grammar and Prose.—*I., II.; M., W., F.; arrange time; (3).* Professor Dodge.

9. Early English.—*I., II.; Tu., Th.; arrange time; (2).* Professor Dodge.

10. Old English Poetry.—*I., II.; M., W., F.; arrange time; (3).* Professor Dodge. [Not given in 1901-1902.]

Required: English 8 and 9.

11. Fourteenth and Fifteenth Century Literature.—*I., II.; Tu., Th.; arrange time; (2).* Professor Dodge.

Required: English 8 and 9. [Not given in 1901-1902.]

12. History of the English Language.—*I., II.; W.; arrange time; (2).* Professor Dodge.

Required: English 8 and 9. [Not given in 1901-1902.]

13. Icelandic.—*I., II.; daily; arrange time; (5).* Professor Dodge.

Required: English 8 and 9, or German 1. [Not given in 1901-1902.]

14. Old English Legal Codes.—Special course for students of politics, economics, and history. As an introduction to the course, Old English Grammar is studied, so far as is necessary for a proper understanding of early phraseology. Primarily for graduates, but

open to undergraduates having sufficient preparation. *I., II.; M., W.; arrange time; (2).* Professor DODGE.

Required: One year of history, economics, sociology or English Literature.

15. SEMINARY: METHODS OF ENGLISH TEACHING.—Open to senior and graduate students. *I., II; W.; arrange time; (1).* Professor DODGE.

[The second semester may be taken without the first.]

16. HISTORY OF AMERICAN LITERATURE.—*I.; M., W., F.; 4; (3).* Associate Professor JAYNE.

17. HISTORY OF THE ENGLISH LANGUAGE.—Elementary course. *I., II.; Tu., Th.; 2; (2).* Professor DODGE.

[The second semester may be taken without the first.]

18. THE TECHNIQUE OF THE ENGLISH NOVEL.—*I.; Tu., Th.; arrange time; (2).* Assistant Professor JAYNE.

ENTOMOLOGY.

1. ELEMENTARY ENTOMOLOGY.—This is a field, laboratory, and lecture course in general entomology open to all matriculated students, pursued without reference to economic ends, and complete in itself, but leading to the courses in general entomology (Entomology 2 and 3). The field and laboratory work is strictly entomological, but the lecture course is in great measure a course in general biology, with entomological illustrations. The subject is taught in part with a view to giving the prospective teacher of zoölogy command of entomological material for illustrative purposes. *II.; daily; 6, 7; (5).* Dr. FOLSOM.

2. GENERAL ENTOMOLOGY.—This is the first of two semester courses, which may be taken independently or succeed each other in either order. Taken together, they form a year's connected major work in entomology, covering substantially the whole field. The present course is devoted mainly to field entomology in the fall and to the morphological and physiological aspects of the subject later in the semester. Beginning with the collection and preservation of specimens and the making of field observations, it is continued by laboratory studies of typical insects, made with special reference to the recognition of adaptive structures, and experimental work intended to determine their exact utilities. Species of economic insects are drawn upon by preference for laboratory study and illustrative purposes. *I.; daily; 3, 4; (5).* Dr. FOLSOM.

Required: Zoölogy 1, Entomology 1, or Entomology 4.

3. General Entomology.—To be taken either with or without the preceding course. The classification and determination of insects, the study of life histories in the insectary and by field observation, and the collection of information with respect to the oecological relations of insects are the principal subjects of this course. It is designed especially to make the student acquainted with a considerable number of insect species and other groups (preference being given to those of special economic or scientific importance), and also to serve as an introduction to a comprehensive and intelligent observation of the insect in the field and of its habits and transformations in the insectary. *II.; daily; 3, 4; (5).* Dr. Folsom.

Required: Zoölogy 1 or Entomology 1.

4. Economic Entomology.—By means of laboratory studies and lectures and field and insectary observations, students will be made familiar with the commonest and most important injurious insects, and with means of preventing or arresting their injuries. *I.; daily; 6, 7; (5).* Professor Forbes and Dr. Folsom.

5. Advanced Entomology.—Under this head students desiring advanced work in entomology, especially as a preparation for thesis work in this subject, will be individually provided for on consultation with the entomological instructors. The course may be made to cover one or two semesters and to earn a three-hour or a five-hour credit in each. At least a three-hour course for one semester will be required as a preparation for entomological thesis work. *I., II.; arrange time; (3 to 5 each semester).* Professor Forbes or Dr. Folsom.

Required: Entomology 2, 3, or 4.

6. Thesis Investigation.—Students specializing in entomology will select a thesis subject, preferably during the junior year. They will be expected to give three hours a day to investigation upon it under the supervision of an instructor during their senior year. *I., II.; daily; arrange time; (5).* Professor Forbes and Dr. Folsom.

Required: At least a three-hour course in Entomology 5.

FRENCH

1. Elementary Course.—This course embraces grammatical study, pronunciation, exercises in composition, and conversation. Reading of representative works of modern authors, such as Daudet, Labiche, Jules Verne, and others. *I., II; daily; three sections; section A, 1; section B, 3; section C, 4; (5).* Assistant Professor Piatt, Miss Jones, and Miss McWilliams.

2. Nineteenth Century.—(1) The class will read works of

Mérimée, George Sand, Balzac, Sandeau, Bourget, Hugo, and others. (2) Outlines of French literature. (3) Assigned readings and reports thereon. *I., II.; daily; three sections; 1, 2, 3; (5).* Professor FAIRFIELD. Assistant Professor PIATT, and Miss JONES.

Required: French 1 or 5.

3a. SEVENTEENTH CENTURY.—(1) Readings from Molière, Corneille, Racine, Lafontaine, Boileau, de Sévigné, and others. (2) Study of French literature and civilization of the century. (3) Advanced composition. (4) Assigned reading. *I., II.; M., W., F.; 2; (3).* Professor FAIRFIELD.

Required: French 2.

3b. COMPOSITION AND CONVERSATION.—This course may be taken alone or more profitably in addition to 3a. *I., II.; Tu., Th.; (2).* Professor FAIRFIELD.

4. EIGHTEENTH CENTURY.—(1) The course will consist of lectures in French, themes, and collateral reading. Reading of selected works of Voltaire, Montesquieu, Rousseau, Chénier, and Beaumarchais. (2) Assigned readings. (3) Themes in French upon subjects connected with the course. *I., II.; M., W., F.; (3); arrange time.* Professor FAIRFIELD.

Required: French 3.

5. SCIENTIFIC AND TECHNICAL FRENCH.—Similar to course 1 for first semester. In the second semester the class takes up the study of scientific and technical French. For this purpose a weekly scientific periodical, *La Nature,* published at Paris, is taken by each member, and made the basis of the class-room work. Particular attention is given to acquiring a technical vocabulary and to rapid reading. *I., II.; daily; two sections; 2, 7; (5).* Assistant Professor PIATT.

COURSE FOR GRADUATES

101. OLD FRENCH READINGS.—Clédat, Les Auteurs Français du Moyen Age; Suchier, Aucassin et Nicolete; Gautier, La Chanson de Roland. Translation and comparison with the modern idiom. Study of the laws of phonetic changes. Lectures upon Old French philology. Professor FAIRFIELD.

GEOLOGY

1. GEOLOGY, MAJOR COURSE.—This course begins in the second semester, following Mineralogy 1, and is continued through the first semester of the succeeding year (Geology 2). Either semester counts as a major study.

(a) Dynamic Geology. The instruction given under this head

is intended to familiarize the student with the forces now at work upon and within the earth's crust, modeling its reliefs, producing changes in the structure and composition of its rock masses and making deposits of minerals and ores. A series of localities is studied in which great surface changes have recently taken place, with a view to ascertaining the character of the forces producing such changes, and the physical evidence of the action of like forces in the past. The subject is taught by lectures, and is abundantly illustrated by maps, models, charts, and views.

(b) Petrographic. This course is a continuation of Mineralogy 1 (b) (p. 257), and deals with fragmental rocks in substantially the same manner as that does with crystallines. [Continued under Mineralogy 2 (p. 258).]

(c) Historical Geology. The work on this subject is substantially an introduction to the history of geology as a science. Especial stress is laid on the development of the North American continent and the evolution of its geographic features.

(d) Paleontology. The scheme of instruction in this subject places before the student the classification adopted for those organic forms occurring as fossils, together with the succession of the various groups in the strata, with the cause, as far as known, for their appearance and disappearance. The student is required to familiarize himself with selected groups of paleozoic fossils, abundant illustrations of which are placed in his hands. The subject is presented in lectures and demonstrations, each group being considered in connection with its nearest living representative. [Continued under Paleontology 1. p 262]. *II.; daily; 1, 2; (5).* Professor ROLFE and Mr. FOX.

Required: Mineralogy 1.

2. MAJOR COURSE CONTINUED.—Economic Geology. The course is devoted to a study of the uses man may make of geologic materials, the conditions under which these materials occur, and the qualities which render them valuable. The instruction is given by text and readings from the various state and government reports, transactions of societies, and monographs in which these subjects are treated, as well as by demonstrations with materials from the collections of the University. *I.; daily; 6, 7; (5).* Professor ROLFE and Mr. FOX.

Required: Geology 1 or 3.

NOTE.—In dynamic and historical geology Dana's manual is used as a reference book. Petrography is pursued by means of a laboratory guide adapted from Rosenbusch, Zirkel, Roth, Teall, and others.

In economic geology the manuals of Kemp and Tarr are used as texts. In paleontology Nicholson, Bernard, and Zittel are used for descriptions of the larger groups, Miller for general distribution, and the various state surveys for species.

3. General Geology, Minor Course.—This course includes a selection of such geological facts and theories as should be known to every educated person, with such discussion of them as the time will permit. The subjects treated are fully illustrated. One hour each day is devoted to laboratory work, and this time is about equally divided between the study of minerals, rocks, and fossils.

The instruction is by texts and lectures, using Le Conte's Elements of Geology as the basis for the class-room work, and a specially prepared guide for the laboratory. *II.; daily; 6, 7; (5).* Professor Rolfe and Mr. Fox.

4. Investigations and Thesis.—For students who select a geological, paleontological, mineralogical, or geographical subject for a thesis, guidance and facilities are offered for individual investigations in the field and laboratory. *I., II.; daily; 3, 4; (5).* Professor Rolfe.

Required: Geology 1, Mineralogy 2, Paleontology 1, or Physiography 1.

GERMAN

1. Elementary Course.—Thomas's Practical German Grammar; Jones's German Reader, or other easy narrative prose, with exercises in composition. *I.; daily; section A, 1; section B, 2; section C, 2; section D, 4; section E, 6; section F, 7; (5).* Professor Rhoades, Assistant Professor Meyer, Dr. Brooks, Miss Blaisdell.

3. Narrative and Descriptive Prose.—For students in all colleges. Jone's German Reader continued, with other selections of a similar character. Prose Composition and grammatical drill. *II.; daily; section A, 1; section B, 2; section C, 2; section D, 4; section E, 6; section F, 7; (5).* Professor Rhoades, Assistant Professor Meyer, Dr. Brooks, Miss Blaisdell.

Required: German 1.

4. Descriptive and Historical Prose.—Selections from standard prose writers of the present century, with grammatical review and drill; also exercises in reading at sight. Prose Composition. *I.; daily; section A, 1; section B, 4; section C, 6; section D, 8; (5).* Professor Rhoades, Assistant Professor Meyer, Dr. Brooks, Miss Blaisdell.

Required: German 1 and 2, or two years of high school work.

5. GERMAN CLASSICS.—For students in all colleges. One of Schiller's later dramas and one of Goethe's or Lessing's are translated, with work in prose composition. To the prose composition two hours per week are devoted, and, as the translation work in the two sections is different, students may, in addition to the regular work, elect and receive credit for the translation in the other section, indicating it as 5a. *II.; daily; section A, 4; section B, 8; (5).* Professor RHOADES, Assistant Professor MEYER.

Required: German 4.

6. HISTORICAL and SCIENTIFIC PROSE.—For students of all colleges. Practice in rapid reading is the purpose of this course; during the second half of the semester works of a general scientific character will afford opportunity to become familiar with scientific style. *II.; daily; section A, 1; section B, 6; (5).* Dr. BROOKS, Miss BLAISDELL.

Required: German 4.

7. HEINE and the ROMANTIC WRITERS.—Rapid translation and sight reading. In 1901-1902 selections from various writers of the Romantic School will be read, designated as 7a; in 1902-1903 selections from Heine's prose works and Hatfield's edition of German Lyrics and Ballads will be read, designated as course 7b. Students may elect and receive credit for both options. *I.; M., W., F.; 7; (3).* Assistant Professor MEYER.

Required: German 5 or 6, or three years of high school German.

8. LESSING or SCHILLER.—This course is intended to accompany course 7, but may be taken separately. In 1901-1902 Lessing's Nathan der Weise and other selected work will be read and discussed, designated as course 8a; in 1902-1903 Schiller's Wallenstein and other selections will be similarly treated, designated as 8b. Students may elect and receive credit for both options. *I.; Tu., Th.; 7; (2).* Professor RHOADES.

Required: German 5 or 6, or three years of high school German.

9. GOETHE'S FAUST.—Translation of Part I. and portions of Part II., with discussion of the genesis and import of the work and lectures on the poet's life. *I.; M., W., F.; 7; (3).* Professor RHOADES.

Required: German 7, 8, 12; open only to juniors and seniors or special students by permission.

10. SELECTIONS FROM GOETHE.—In 1901-1902 selections from the lyrics and works of the classical period, designated as 10a; in 1902-1903 selections from the prose works and earlier dramas,

designated as 10b. The course is intended to supplement 9, but may be taken separately, and students may elect and receive credit for both options. *I.; Tu., Th.; 7; (2).* Dr. BROOKS.

Required: German 7, 8, 12.

11. HISTORY OF GERMAN LITERATURE.—Lectures, recitations, and reports on assigned collateral reading. *II.; Tu., Th.; 7; (2).* Professor RHOADES.

Required: German 7, 8.

12. RECENT AND CONTEMPORARY WRITERS.—Rapid reading of works by Dahn, Hauptmann, Heyse, Sudermann, Wilbrandt, and others. The same works will not be read in consecutive years, and the course may, therefore, be elected in 1901-1902 as 12a, in 1902-1903 as 12b, and students may elect and receive credit for both options. *II.; M., W., F.; 7; (3).* Assistant Professor MEYER.

Required: German 7.

13. TEACHERS' SEMINARY.—Study of methods, text-books, and practical teaching. This course will be required in order to obtain a specific recommendation to teach German. *II.; M., F.; 7; (2).* Professor RHOADES.

Required: German 7, 9, 12, also 11, unless taken in connection with this course.

14. INTRODUCTION TO MIDDLE HIGH GERMAN.—Outlines of grammar; translation of texts into modern German and into English; relation of Middle High to Modern German. Open to juniors and seniors who have had German 12. *I.; M., W., F.; 8; (3).* Dr. BROOKS.

GREEK

1. GRAMMAR AND READER. *I.; daily; 5; (5).* Professor MOSS.

2. GRAMMAR AND READER. *II.; daily; 5; (5).* Professor MOSS.

Required: Greek 1.

3. XENOPHON.—HELLENICA AND ANABASIS. *I.; daily; 6; (5).* Professor MOSS.

Required: Greek 2.

4. ANDOCIDES AND LYSIAS.—*II.; daily; 6; (5).* Professor MOSS.

Required: Greek 3.

5. HISTORICAL PROSE.—Herodotus. Greek prose composition once a week. *I.; daily; 4; (5).* Professor MOSS.

Required: Entrance credits.

6. HISTORICAL PROSE.—Thucydides. Greek prose composition once a week. *II.; daily; 4; (5).* Professor MOSS.

Required: Greek 5.

7. SELECTIONS FROM PLATO.—*I.; daily; 1; (5).* Professor MOSS.
Required: Greek 6.

8. GREEK TRAGEDY.—*II.; daily; 1; (5).* Professor MOSS.
Required: Greek 7.

9. HOMER.—The Iliad. *I.; M., W., F.; 2; (3).* Professor MOSS.
Required: Greek 8.

10. HOMER.—The Iliad. *II.; M., W., F.; 2; (3).* Professor MOSS.
Required: Greek 8.

11. GREEK ORATORY, SELECTED SPECIMENS.—*I.; Tu., Th.; 2; (2).* Professor MOSS.
Required: Greek 8.

12. THEOCRITUS.—*II.; Tu., Th.; 2; (2).* Professor MOSS.
Required: Greek 8.

NOTE.—Courses 1 to 4, inclusive, were publicly offered in the fall of 1900. They are designed to meet the requirements of students who do not present Greek for entrance, but who wish to gain some knowledge of the language and receive university credit therefor. The announcement of authors is tentative, and may be changed as the progress of classes requires.

HISTORY

[It is recommended that the elementary courses be taken in the following order: History 5, 6, 1, 2. For students who take but one course in History, History 1 is recommended.]

1. MEDIAEVAL AND MODERN EUROPEAN HISTORY.—Elementary introductory course. *I., II.; M., W., F.; section A, 1; section B, 4; section C, 7; (3).* Dr. SCHOOLCRAFT and Mr. ALVORD.

2. HISTORICAL INTRODUCTION TO CONTEMPORARY POLITICS.—The political history of the nineteenth century. The first semester is devoted to the political history of the United States, and the second to that of Europe. The work of either semester may be taken separately. This course, taken with Public Law and Administration 1, constitutes, during the first semester, a course in American history and government; and in the second semester a course in the governments and recent political history of Europe. *I., II.; Tu., Th.; 4; (2).* Professor GREENE.

3. AMERICAN HISTORY.—The origin and growth of the nation from the beginning of English colonization in America to the close of the reconstruction period. The work of either semester may be taken separately. *I., II.; daily; 1; (5).* Professor GREENE.

Required: History 1 or 2; or, for juniors and seniors in the Col-

leges of Engineering, Science, and Agriculture, any course in economics or public law and administration.

4. English Constitutional History.—In this study of the growth of the English constitution, some attention is also given to the origins of legal institutions. The course is therefore adapted to the needs of students who expect to follow the profession of law. *I., II.; M., W., F.; 3; (3).* Dr. Schoolcraft.

Required: History 1 or an equivalent.

5. The History of Greece.—This course and History 6 will be useful to students who expect to teach the classics of ancient history in secondary schools. *I.; Tu., Th., F.; 7; (3).* Mr. Alvord.

6. The History of Rome.—The aim of this course, which furnishes a suitable introduction to History 1, is to give a general survey of the Roman world before the appearance of the Germans, rather than to trace the economic and political history of the city. *II.; Tu., Th., F.; 7; (3).* Mr. Alvord.

7. The Revolutionary Era in Europe, 1763-1815.—*I.; M., W., F.; 4; (3).* Dr. Schoolcraft.

Required: History 1.

8. The Colonial Interests and Colonial Policies of the European Powers.—Special attention will be given to the nineteenth century. *II.; M., W.; 4; (3).* Professor Greene.

Required: History 1.

9. Mediaeval History.—Advanced course. The Conflict of the Papacy and the Empire. *M., Tu., Th.; 2; (3).*

Required: History 1.

[May be omitted in 1901-1902.]

10. England Under the Stuart Kings.—Puritanism and the Church of England. The conflict between king and parliament. *II.; M., W., F.; 2; (3).* Dr. Schoolcraft.

COURSES FOR GRADUATES

101. American History.—Special studies in the development of the West. *I., II.; M., W.; 8; (3).* Professor Greene.

102. English History.—Studies in the period of the Puritan Revolution. *I., II.; arrange time; (2).* Dr. Schoolcraft.

103. Seminary in American History.—Training in historical research. *I., II.; arrange time; (for undergraduate students, 2; for graduates, 2 or more, at the option of the student and the instructor).* Professor Greene.

Courses 101 to 103 are primarily for graduates, but they may also be taken by seniors of high standing who have previously taken two or more courses in history.

HORTICULTURE

1. Principles of Fruit-Growing.—This course, which is designed for all students in the College of Agriculture, deals with the fundamental principles of fruit culture. It embraces a study of the planting and care of fruit areas. Lectures, recitations, reference readings, and practical exercises. *I.; daily; 1, 2; (5).* Mr. Lloyd.

2. Small Fruit Culture.—A study of the strawberry, raspberry, blackberry, dewberry, currant, gooseberry, cranberry, and juneberry; each studied with reference to the following: Botanical matter, history, importance and extent of cultivation, soil, location, propagation, planting, pruning and training, fertilizers, insect enemies and diseases, spraying, varieties, harvesting, marketing, profits. *II.; Tu., Th.; 1; (2).* Mr. Lloyd.

3. Vegetable Gardening.—Kitchen and market gardening and vegetable forcing; embracing a study of all the common vegetables. *II.; M., W., F.; 1; (3).* Mr. Lloyd.

4. Plant Houses.—The construction and management of conservatories and other plant houses. Text-book and laboratory work. *I.; first half; daily; 8; (2½).* Mr. Lloyd.

5. Plant Propagation.—A study of the methods of securing and perpetuating desirable varieties of plants,—grafting, budding, layering, making cuttings, polination, seedage, etc. Text-book and laboratory work. *I.; second half; daily; 8; (2½).* Mr. Lloyd.

6. Nursery Methods.—A study of the various methods of nursery management and their relation to horticultural practices in general. Lectures, reference readings, and laboratory work. *II.; first half; daily; 8; (2½).* Mr. Lloyd.

Required: Horticulture 5.

7. Spraying.—The theory and practice of spraying plants, including a study of materials and methods employed in the combating of insects and fungous diseases. Text-books and practical demonstrations. *II.; second half; daily; 8; (2½).* Mr. Lloyd.

Required: Horticulture 1.

8. Orcharding.—A comprehensive study of pomaceous fruits: apple, pear, quince; drupaceous or stone fruits: plum, cherry, peach, nectarine, apricot. Each fruit studied with reference to the points enumerated under 2, above. Lectures, text-books, and laboratory work. *I.; daily; 4; (5).* Assistant Professor Blair.

Required: Regular admission; Horticulture 1.

9. Forestry.—This course embraces a study of forest trees and their natural uses, their distribution, and their artificial production.

The relations of forest and climate are studied, and the general topics of forestry legislation and economy are discussed. *II.; Tu., Th.; 4; (2).* Professor BURRILL.

Required: Botany 2.

10. LANDSCAPE GARDENING.—Ornamental and landscape gardening, with special reference to the beautifying of home surroundings. Lectures illustrated by means of lantern slides and charts. *II.; M., W., F.; 4; (3).* Assistant Professor BLAIR.

Required: Two years of University work, or special preparation.

11. ECONOMIC BOTANY.—Useful plants and plant products. Lectures and assigned readings. *I.; Tu., Th.; 3; (2).* Professor BURRILL.

Required: Regular admission; Botany 2.

12. EVOLUTION OF CULTIVATED PLANTS.—Comprising a study of organic evolution and the modification of plants by domestication. *I.; M., W., F.; 3; (3).* Assistant Professor BLAIR.

Required: Regular admission; two years of University work

13. VITICULTURE.—A comprehensive study of the grape and its products. *I.; first half; daily; 5; (2½).* Assistant Professor BLAIR.

Required: Horticulture 1 and 8.

14. NUT CULTURE.—The cultivation and management of nut-bearing trees for commercial purposes *I.; second half; daily; 5; (2½).* Assistant Professor BLAIR.

Required: Regular admission; Horticulture 1 and 8.

15. FLORICULTURE.—The study and management of conservatory and house plants. *II.; daily; 5; (5).* Assistant Professor BLAIR.

Required: Regular admission; Horticulture 4 and 5; Botany 2.

16. GENERAL HORTICULTURE.—For students not registered in the College of Agriculture. A course covering the general principles and processes of fruit-growing, gardening, floriculture, and ornamental planting. Suited to needs of individual students so far as practicable. *I.; daily; 3; (5).* Assistant Professor BLAIR and Mr. LLOYD.

17. COMMERCIAL HORTICULTURE.—A course giving practical training for those students intending to follow horticulture as a business. Work in houses, orchards, and gardens—suited to ability and requirements of each student. *I., II.; arrange hours; (5-20).* Mr. LLOYD.

18. EXPERIMENTAL HORTICULTURE.—A course for those intending to engage in professional horticulture or experiment station work.

For advanced students. *I.; daily; 1; (5).* Assistant Professor BLAIR.

Required: Regular admission; twenty hours' work in horticulture.

19. SPECIAL INVESTIGATION AND THESIS WORK.—Required of candidates for graduation. *II.; daily; arrange time; (5).* Professor BURRILL and Assistant Professor BLAIR.

HOUSEHOLD SCIENCE

1. PRINCIPLES OF THE SELECTION AND PREPARATION OF FOOD.—In this course the nature and the uses of food are considered; its chemical composition; changes effected by heat, cold or fermentation. Practical application of the principles of selection are given by marketing expeditions. Some of the processes of the manufacture of food are considered as well as the combinations of different kinds. *Knight's Food and Its Functions.* A demonstration lecture, two laboratory periods, and one recitation per week. *II.; M., W., F.; 1, 2; (3).* Miss SIMON.

Required: Entrance credit in Physics; entrance credit in Chemistry, or Chemistry 1.

2. HOME SANITATION.—This course treats of the situation and surroundings of the house; the relation of soil to health; heating, lighting, ventilation; water supply and drainage. Furnishings from a sanitary and artistic standpoint, and some of the principles of home management are considered. Lectures, reference, and field work, and discussions. *Home Sanitation, Richards and Talbot. I.; Tu., Th.; 2; (2).* Professors WHITE and BEVIER.

3. ELEMENTARY HOUSEHOLD DECORATION.—Topics considered: The evolution of the house; homes of primitive peoples; finishing, furnishing and decoration of modern American houses. Lectures reference work, and discussions. *II.; Tu., Th.; 2; (2).* Professor BEVIER.

4. CHEMISTRY OF FOOD AND NUTRITION.—This course deals with the subjects of food and nutrition from the standpoint of sanitary and physiological chemistry. The student is expected to make investigation in the study of yeast fermentation; various household applications of bacteriology; to construct dietaries adapted to different ages, occupations, and conditions. *Richards and Woodman's Air, Water, and Food; Halliburton's Essentials of Chemical Physiology; Government Bulletins.* Two lectures, one recitation, two laboratory periods per week. *I.; M., W.; 3, 4; Tu., Th., F.; 3; (5).* Professor BEVIER.

Required: Chemistry, 1, 3b, 4; (Chemistry 5a, 20, or 23 must be taken before or simultaneously with the work); Botany 5; at least one semester's work in Biology, Botany, or Zoölogy in the University; Physiology 4.

5. Hygiene and Dietetics.—This course is a continuation of course 1. It treats of the relations of food to health; of the adaptation of the diet to abnormal conditions of the body, and includes the working out of dietaries suited to the needs of the average family. *I.; M., W., F.; 5; (3).* Miss Simon.

Required: Household Science 1.

ITALIAN

1. Grammar and Reading.—Grandgent's Italian Grammar, reading of modern authors; Dante's Divina Commedia, outlines of Italian literature. *I., II.; M., W., F.; arrange time; (3).* Professor Fairfield.

LATIN

1. Cicero and Pliny.—De Amicitia and De Senectute; composition based on the text; selections from Pliny's Letters; Roman life in Pliny's time. This course is required of students who offer but nine credits in Latin for admission. *I., II.; daily; 1; (5).* Mr. Palmer.

2. Livy.—Selections from the XXI. and XXII. books. Latin composition based on the text. The object of this course is to secure facility in composition, translation, and English expression. *I.; daily; 2; (5).* Professor Barton.

3. Terence.—Phormio and Roman Life in Prose and Verse. Outlines of Roman Literature. *II.; daily; 2; (5).* Professor Barton.

Required: Latin 2, 3.

4. Horace and Catullus.—The odes of Horace and the lyrics of Catullus. Their art as a contribution to the world's best literature. *I.; Tu., W., Th., F.; 7.* Professor Barton. [Not given in 1901-1902.]

Required: Latin 2, 3.

5. Horace and Tacitus.—The Satires and Epistles of Horace. Especial reference to the private life of the Romans in the time of Augustus. The Germania of Tacitus, in connection with Cæsar's account of the customs of the Germans. This course will be given in alternate years with course 4. *I.; Tu., W., Th., F.; 7; (5).* Professor Barton.

Required: Latin 2, 3.

6. Tacitus and Plautus.—The Agricola of Tacitus as an example of finished biography; a study of its style. Plautus, three plays. Comedy as an expression of social life. *II.; Tu., W., Th., F.; 7; (5).* Professor Barton.

Required: Latin 2, 3.

7. The Roman Historians.—Readings from Cæsar, Sallust, Livy, Tacitus, and Suetonius. The course is devoted to a study of the differences of style and method of treating historical themes. *I.; M., Tu., W., Th.; 3; (5).* Professor Barton. [Not given in 1901-1902.]

Required: Latin 2, 3.

8. Roman Satire and Epigram.—Selections from Juvenal and Martial. Society in the first century. *I.; M., Tu., W., Th.; 3; (5).* Professor Barton.

Required: Latin 2, 3.

9. Teachers' Course.—A study of the aims and methods of preparatory Latin instruction and the conditions existing in the high schools of the state. Students will for a portion of the time do the work of a preparatory class and at intervals take charge of the recitation. *II.; M., Tu., Th., F.; 3; (5).* Professor Barton.

10. Advanced Latin Prose Composition.—Intended especially for students fitting themselves for teaching. *I.; M., W., F.; 8; (3).* Professor Barton.

LAW

1. Contracts.—Text-book, *Keener's Cases on Contracts. I.; M., W., Th.; 3; (3). II.; M., W., F.; 3; (3).* Professor Pickett.

2. Torts.—Text-book, *Ames and Smith's Cases on Torts. I.; Tu., Th., F.; 4; (3). II.; M., W., F.; 2; (3).* Professor Drew.

3. Real Property.—Text-book, *Gray's Cases on Property. I.; F.; 3; W.; 4; (2). II.; Tu.; 3; W.; 4; (2).* Professor Drew.

4. Common Law Pleading.—Text-book, *Perry's Common Law Pleading. I.; M.; 4; (1). II.; Tu., Th.; 2; (2).* Professor Drew.

5. Criminal Law.—Text-book, *Beale's Cases on Criminal Law. I.; M., W., F.; 2; (3).* Professor Hughes.

6. Personal Property.—Text-book, *Gray's Cases on Property. I.; Tu.; 3; (1).* Professor Pickett.

7. Domestic Relations.—Text-book, *Smith's Cases on Law of Persons. II.; Tu., Th.; 4; (2).* Professor Tooke.

8. Evidence.—Text-book, *Thayer's Cases on Evidence. I.; Tu., Th.; 2; (2). II.; Tu., Th.; 2; (2).* Professor Hughes.

9. Sales.—Text-book, *Williston's Cases on Sales. I.; M., W., F.; 4; (3).* Professor Pickett.

10. REAL PROPERTY.—Text-book, *Gray's Cases on Property. I.; M., W., 3; (2). II.; W., F.; 3; (2).* Professor SCOTT.

11. AGENCY.—Text-book, *Wambaugh's Cases on Agency. I.; M., W.; 2; (2). II.; M., Tu.; 3; (1).* Professor DREW.

12. EQUITY. Text-book, *Adams's Equity. I.; Tu., Th.; 3; (2). II.; M., Th.; 3; (2).* Professor SCOTT.

13. DAMAGES.—Text-book, *Beale's Cases on Damages. I.; Tu., Th.; 4; (2).* Professor TOOKE.

14. BAILMENTS AND CARRIERS.—Text-book, *McClain's Cases on Carriers. II.; M., W., F.; 4; (3).* Professor PICKETT.

15. BILLS AND NOTES.—Text-book, *Huffcutt's Negotiable Instruments. II.; Tu., Th.; 3; F.; 1; (3).* Professor PICKETT.

16. TRUSTS.—Text-book, *Ames's Cases on Trusts. I.; T., Th.; 2; (2).* Professor DREW.

17. CORPORATIONS.—Text-book, *Smith's Cases on Private Corporations. I.; M., W.; 3; (2). II.; W., F.; 1; (2).* Professor HUGHES.

18. WILLS AND ADMINISTRATIONS.—Text-book, *Gray's Cases on Property. I.; M., W., F.; 2; (3).* Professor TOOKE.

19. PARTNERSHIP.—Text-book, *Ames's Cases on Partnership. I.; Tu., Th.; 3; (2).* Professor HUGHES.

20. EQUITY PLEADING.—Text-book, *Langdell's Summary of Equity Pleading. II.; M., W.; 4; (2).* Professor HUGHES.

21. SURETYSHIP AND MORTGAGE.—Text-book, *Ames's Cases on Suretyship. II.; M., F.; 3; (2).* Professor DREW.

22. CONSTITUTIONAL LAW.—Text-book, *McClain's Cases on Constitutional Law. I.; M., F.; 4; (2). II.; M., F.; 4; (2).* Professor SCOTT.

23. INTERNATIONAL LAW.—Text-book, *Snow's Cases on International Law. I.; Tu., Th.; 4; (2). II.; Tu., Th.; 4; (2).* Professor SCOTT.

24. MUNICIPAL CORPORATIONS.—Text-book, *Smith's Cases on Municipal Corporations. II.; M., W.; 2; (2).* Professor TOOKE.

25. PRACTICAL CONVEYANCING.—Text-book, *Illinois Statutes. I.; F.; 3; (1). II.; Th.; 2; (1).* Profesor PICKETT.

26. MOOT COURT. *I.; F.; 2-5 p. m. II.; F.; 2-5 p. m.* Mr. Justice HARKER.

LIBRARY SCIENCE

1. ELEMENTARY LIBRARY ECONOMY.—Instruction begins with the selection of books and the placing of an order, and follows the regular library routine.

The work of the order department is taught by lectures and practice. American, English, French, and German trade bibliography is introduced. Instruction in the accession department is according to Dewey's Library School Rules. Lectures are given upon duplicates, exchanges, gifts, importing, copyright, and allied topics.

The Dewey decimal classification is taught by classifying books. In the shelf department Dewey's Library School Rules is used and supplemented with lectures. Sample shelf-lists are made with both sheets and cards.

Cataloging is taught according to Dewey's Library School Rules and Cutter's Rules for a Dictionary Catalogue. After each lecture students are required to catalog independently a number of books. The class is taught to modify the rules to suit different types of libraries. Lectures are given on forms of card catalogs and mechanical accessories. Library handwriting is practiced in connection with all the work.

Instruction is given on loan systems and on binding and repair work.

Single lectures are given on library associations, library schools, library commissions, traveling libraries, home libraries, and library economy publications, to acquaint students with current general library topics. Once in two weeks the entire school examines all library publications received since the last meeting, and considers them in their relation to library history, biography, and administration. *I.; daily; 2; (10). II.; daily; 2; (4).* Professor SHARP.

2. ELEMENTARY REFERENCE.—Lessons are assigned on reference books considered in groups, such as indexes, dictionaries, encyclopædias, atlases, hand-books of history, hand-books of general information, quotations, statistics, etc. Reference lists are prepared for special classes and for literary societies, and the students have practical work in the reference department of the library. *I., II.; Tu.; I.; (2).* Assistant Professor MUDGE.

3. SELECTION OF BOOKS.—Study is based upon the Publishers' Weekly. Each student checks new books considered suitable for a college, public, or village library. Representative new books are examined and reviewed by each student and discussed in class with particular reference to the author and subject of the book, its special features, probable value in different types of libraries, and the extent to which it supplements or supersedes earlier books on the same subject. The comparative method is followed wherever possible, and the aim of the course is both to acquaint the students

with new books and to develop some of the principles governing the selection of books for different types of libraries. The course continues through two years. *I., II.; 1; (2).* Assistant Professor MUDGE.

4. ELEMENTARY APPRENTICE WORK.—The purpose of this work is to familiarize the students with the minor work of a library and to acquaint them with the books in the University library. Each student is given practical work in the mechanical preparation of books for the shelves, and in the copying of minor library records assigned as practice in library handwriting.

The care of the books in the stacks, including the reading of shelves, is assigned to the students, who are thus brought in contact with the books. Upon the completion of a class study, practical work upon this study is assigned to such students as are capable of doing independent work. The work is all done under the direction of an instructor. *I.; daily; 3; (2). II.; daily; 3; (8).* Miss MANN.

Required: Library 1, 2.

5. ADVANCED LIBRARY ECONOMY.—In a comparative study of classification are discussed the systems of Dewey, Cutter, Edwards, Fletcher, Perkins, Smith, and Schwartz. A comparative study of cataloging considers the rules of British Museum, Jewett, Library Association of the United Kingdom, Bodleian Library, American Library Association, Wheatley, Perkins, Cutter, and Dewey. Problems are given in organizing and reorganizing libraries, and the class discusses questions affecting the founding and government of libraries, library legislation, library architecture, library administration, and current problems in public and college library work. *I.; M.; 3; (2); II.; M., W.; 3; (2).* Professor SHARP and Miss MANN.

Required: Library 4.

6. PUBLIC DOCUMENTS.—The publications issued by the U. S. government are carefully studied both for their value as reference books and for the correct methods of cataloging. Methods of printing and distribution, and important indexes, both general and special, are carefully considered. The important publications of each executive department of the government are taken up and various editions in which these appear are noted. Practical reference questions are given to familiarize students with the books, and a sample catalog is made illustrating the various principles. The rules followed in this work are carefully compiled by each student. *I.; W.; 3; (2).* Miss MANN.

Required: Library 1, 2.

7. Bibliography.—Students select books on important subjects and their selection is criticised by professors of the University, who give suggestions as to principles of selection in their specialties. *I., II.; Tu.; 3; (2).* Professor Sharp.

Required: Library 1, 2.

8. History of Libraries.—Libraries are studied by types and by countries, special attention being given to libraries in the United States. *I.; W.; 1; (2).* Professor Sharp.

9. Advanced Reference.—The course takes up transactions of societies and other advanced reference books. A report on current events is introduced as a practical feature of reference work. *II.; Th.; 1; (1).* Assistant Professor Mudge.

Required: Library 1, 2.

10. Book-making.—The course includes the history of printing, printers' marks, book-plates, and the history and art of binding. *II.; W.; 1; (1).* Professor Sharp.

11. Advanced Apprentice Work.—This consists of independent technical work in the University library and of public library work in Champaign, averaging two hours a day through the year. Seniors revise junior cataloging for review, and they classify and catalog new books, and have regular assignments at the reference desk. They also have juniors assigned to them as assistants to test their executive ability. *I., II.; daily; 4; (5).* Miss Mann.

Required: Library 4.

12. Thesis.—Each student is required to prepare a thesis for graduation. This must be on some library topic, and must represent original research. An original bibliography, instead of a thesis, may be presented upon the approval of the director. *I.; arrange time; (1). II.; arrange time; (3).* Professor Sharp.

Required: Library 1, 11.

13. General Reference.—This course is offered to all students of the University who wish to become familiar with the ordinary reference books. It will comprise lectures on the catalog, classification, the reference-room, the reading-room, and groups of books, such as indexes, dictionaries, encyclopædias, atlases, hand-books of general information, hand-books of history, statistics, quotations, etc. *I.; M.; 6:30 p. m.; (1).* Professor Sharp.

MATHEMATICS.

1. Advanced Algebra.—For students in courses requiring spherical trigonometry. This course presupposes a thorough knowledge of elementary algebra through simultaneous quadratics and

proportion. Students, who for any reason have not had this elementary work recently, would find it to their advantage to review it thoroughly before commencing this course. The work will cover the following topics: Progressions, indeterminate equations, binomial theorems for fractional and negative exponents, undetermined coefficients, decompositions of fractions, theory of limits, convergency and divergency of series, reversion of series, summation of series, logarithms, continued fractions, permutations, and combinations, probability, and the loci of equations. *I.; Tu., Th.; section A, 2; section B, 4; (2).* Mr. Coar and Mr. Ponzer.

2. Advanced Algebra.—For students in courses not requiring spherical trigonometry, to be taken with course 4. This course will cover all the work given in course 1, and in addition will include a short introduction to the general theory of equations, with applications to the solution of numerical equations. *I.; M., W., F.; section A, 1; section B, 2; section C, 3; section D, 4; section E, 6; (3).* Mr. Milne and Mr. Coar.

3. Plane and Spherical Trigonometry.—This course covers the same ground in plane trigonometry as course 4. In addition to the work outlined there, about two-fifths of the term will be given to developing the general principles and applications of spherical trigonometry. *I.; M., W., F.; section A, 2; section B, 4; (3).* Mr. Coar and Mr. Ponzer.

Required: Solid and Spherical Geometry.

4. Plane Trigonometry.—The following topics will be taken up, viz.: Measurements of angles, trigonometric functions and their fundamental relations, functions of the sum and the difference of two angles, functions of twice an angle and of half an angle, the construction and use of logarithmic tables, solution of trigonometric equations, the relations between the sides of a triangle and the functions of its angles, the solution of triangles, Demoiyre's theorem and trigonometric series. It is intended that this course shall be taken with course 2 in advanced algebra. *I.; Tu., Th.; section A, 1; section B, 2; section C, 3; section D, 4; section E, 6; (2).* Mr. Milne and Mr. Coar.

6. Analytical Geometry.—The aim is to acquaint the student with analytical methods of investigation and to familiarize him with some of the most recent developments in synthetic geometry; to make him more skillful in the use of algebraic processes, especially as a means of demonstrating geometric properties of loci. Subjects considered are the elementary theory of the point and right line in a plane; use of abbreviated notation; elementary theory of the conic

sections; their equations and properties developed analytically; poles and polars; synthetic geometry of the circle, and the discussion of the general equation of the second degree, and of some higher plane curves. The course will also include a discussion of the following subjects: Coördinate systems for a point in space, the locus in space of an equation of the first and second degree, planes and straight lines, quadratic surfaces. *Tanner and Allen's Analytic Geometry. II.; daily; section A, 1; section B, 3; section C, 6; (5).* Mr. Milne, Mr. Coar, and Mr. Ponzer.

Required: Mathematics 2, 4 or 1, 3.

7. Differential Calculus.—Variables and functions; limits and infinitesimals; differentials and derivatives; differentiation of explicit functions, implicit functions, and functions of several variables; derivatives of higher orders; successive derivatives, developments in series; maxima and minima of functions; indeterminate forms; plane curves, tangents, and normals; asymptotes, singular points, and curve tracing; theory of envelopes, of curvature, of evolutes, and of involutes. *I.; daily; section A, 1; section B, 2; section C, 4; (5).* Mr. Short.

Required: Mathematics 6.

9. Integral Calculus.—Elementary forms of integrations; integrals immediately reducible to the elementary forms; integration by rational transformations; integration of irrational algebraic differentials; integration of transcendent functions; definite integrals; successive integration; differentiation under the sign of integration; integration by means of differentiating known integrals; double integrals; triple and multiple integrals; product of two definite integrals.

Rectification and quadrature; the parabola, the ellipse, the cycloid, the Archimedean spiral, the logarithmic spiral, the limniscate, the cycloid, quadrature of surfaces of revolution and of surfaces in general; cubature of volumes; the sphere, the pyramid, the ellipsoid, any solid of revolution, and of volumes in general. *II.; daily; section A, 1; section B, 2; section C, 4; (5).* Mr. Short.

Required: Mathematics 7.

10. Theory of Equations.—The development of the general properties of equations; relations of the roots and the coefficients of an equation, with applications to symmetric functions; transformation of equations; solution of reciprocal and binomial equations; algebraic solution of cubics and biquadratics; properties of derived functions; the limits and separation of the roots of equations; the

solution of numerical equations of the nth degree. *I.; M., W., F.; 1; (3)* Associate Professor TOWNSEND.

Required: Mathematics 2, 4 or 1, 3.

11. THEORY OF DETERMINANTS.—The origin and notation of determinants, properties of determinants, determinant minors, multiplication of determinants, determinants of compound systems, determinants of special forms—Jacobians, Hessians, Wronskians—with applications to algebra, including linear transformations, and to analytic geometry. *I.; Tu., Th.; 1; (2).* Associate Professor TOWNSEND and Mr. COAR.

Required: Mathematics 7, 10.

12. THEORY OF INVARIANTS.—The course will cover the general development of the theory of invariants, both from the geometric and from the algebraic side. Applications of invariants will be made to systems of conics and to higher plane curves. Lectures with collateral reading. Associate Professor TOWNSEND. [Not given in 1901-1902.]

Required: Mathematics 11.

13. THEORY OF FUNCTIONS.—This course is intended as a continuation of the work done in calculus (Math. 7, 9) and will cover the general theory of functions of real as well as of complex variables. By way of introduction considerable attention will be given to the development of the fundamental ideas of the analysis, including rational and irrational numbers, mengelehre, single and double limits. These will be applied to the study of the continuity and discontinuity of functions of one and of two real variables as well as questions of uniform convergence, existence of derivatives, condensation of singularities, definite integrals, etc. In complex variables, the same questions will again be studied covering the general theory of the analytic function from both the Riemann and the Weierstrass point of view. *I., II.; M., W., F.; 3; (6).* Associate Professor TOWNSEND.

Required: Mathematics 7, 9, 10.

14. METHOD OF LEAST SQUARES.—The object of this course is to present the fundamental principles of the subject in a manner so plain as to render them intelligible and useful to students of astronomy and engineering. The following subjects will be studied: Law of probability and error, adjustment of observations, precision of observations, independent and conditioned observations, etc. *I.; M., W., F.; 4; (2).* Mr. BRENKE.

Required: Mathematics 9.

15. SEMINARY AND THESIS.—*I., II.; Tu., Th.; 3; (2).* Associate Professor TOWNSEND and Mr. COAR.

16. DIFFERENTIAL EQUATIONS.—This subject is designed for students in the courses of engineering and of mathematics and astronomy. It will embrace the following topics: General linear equations with constant coefficients, special forms of differential equations of higher order, integration in series, etc *I.; M., W., F.; 4; (3).* Professor SHATTUCK.

Required: Mathematics 9.

17. ANALYTICAL GEOMETRY OF SPACE.—A general review will be given of the position of the plane and the right line in space and the more general properties of surfaces of the second degree. To this will be added the classification and special properties of quadrics, and a brief introduction to the theory of surfaces in general. *II.; M., W., F.; 1; (3).* Associate Professor TOWNSEND and Mr. COAR.

Required: Mathematics 9.

18. HIGHER PLANE CURVES.—This course is designed to cover the general theory of algebraic curves, together with the application of the theory of invariants to higher plane curves. Special study will be made of curves of the third and fourth order. Associate Professor TOWNSEND. [Not given in 1901-1902.]

Required: Mathematics 12.

20. CALCULUS OF VARIATIONS.—This course has for its aim merely to acquaint the student with those elements of the science which are most needed in the study of the higher subjects of mathematical astronomy and physics. *II.; M., W., F.; 4; (3).* Professor SHATTUCK.

Required: Mathematics 11, 16.

21. SPHERICAL HARMONICS.—In this course, a thorough study is made of so much of this subject as is of interest to an astronomer. It is introduced by a short course of lectures and study of certain trigonometric series. Fourier's Theorem for developing any function of a variable in a series proceeding in sines and cosines of multiples of the variable is derived and the limitations of its validity investigated. This is followed by the study of Lagrange's, Laplace's and Lamé's functions and their applications to astronomical and physical problems. *I.; M., W., F.; 7; (3).* Associate Professor TOWNSEND and Mr. BRENKE.

Required: Mathematics 11, 14, 16.

22. POTENTIAL FUNCTION.—The potential function is defined and its properties derived and discussed. The potential of various

bodies, such as of a wire, a spherical shell, a sphere, ellipsoid of revolution, etc., is computed. Poisson's and Laplace's Equations are derived and discussed. Green's Propositions with kindred and similar subjects are handled. *II.; M., W., F.; 7; (3).* Associate Professor TOWNSEND and Mr. BRENKE.

Required: Mathematics 21.

23. MODERN GEOMETRY.—This course will include in general a consideration of homogeneous coördiates, duality, descriptive and metrical properties of curves, anharmonic ratios, homography, involution, projection, theory of correspondence, etc *I.; M., W., F.; arrange time; (3).* Associate Professor TOWNSEND.

Required: Mathematics 1, 7, 9, 11.

24. ALGEBRAIC SURFACES.—In this course will be considered the application of homogeneous coördinates and the theory of invariants to geometry of three dimensions, and also the general theory of surfaces, together with the special properties of surfaces of the third and fourth order. *II.; M., W., F.; arrange time; (3).* Associate Professor TOWNSEND.

Required: Mathematics 17, 18.

25. PARTIAL DIFFERENTIAL EQUATIONS.—It deals with the integration and determination of the integration constants of such partial differential equations as arise in the study of such subjects as the flow of heat, the vibration of strings, plates, etc., and electricity. *II.; Tu., Th.; 5; (2).* Associate Professor TOWNSEND.

Required: Mathematics, 9, 16.

26. STATISTICAL ADJUSTMENTS.—This course is intended for students whose work requires the handling of a mass of data, statistical or observed, which is vitiated by the presence of accidental errors, in such way as to elicit the content of truth on sound mathematical principles. It is thought the course will be particularly useful to students of economics and of the observational sciences. *II.; Tu., Th.; 6; (2).* Mr. MILNE.

Required: Mathematics 7, 9.

MECHANICAL ENGINEERING

1. SHOP PRACTICE.—In the shops the work, as far as possible, is carried along the same lines as in our leading commercial shops. The exercises are, in general, chosen from parts of machines under construction, and carefully graded to the skill of the student. Beginning with the care and use of the tools with which he is to work, the student is carried through the various operations of machine-

shop practice. Following is an outline of the work, that of the two semesters being subject to transposition.

(a) First Semester, Wood Shop.—Primary exercises relating to the care and use of tools, and a series of exercises preparatory to pattern making in joint work and turning.

Pattern and core box making, with special reference to molding.

Second Semester (b) Foundry and (c) Forge Shop.—One-half of this semester is devoted to instruction in the management of the cupola and molding, including the making of green and dry sand cores. One-half of the semester is devoted to instruction in forging and welding iron and steel. Special attention is given to tempering of lathe and planer tools, also to case-hardening and annealing. *I., II.; alternates with G. E. D., 4 sections; 1, 2, 3, 6, 7, 8; (3).* Mr. CURTISS, Mr. WILSON, and Mr. JONES.

2. SHOP PRACTICE.—First Semester. Instruction in chipping, filing, and elementary machine work. Lectures.

Second Semester.—Instruction in the various operations of lathe, screw machine, planer, drill press, shaper, grinding machine, milling machine, boring mill, as well as fitting and bench work. Lectures. *I., II.; daily; 1, 2, 3, 6, 7, 8 (divides times with M. E. 4); (2½).* Mr. CLARK.

3. POWER MEASUREMENTS.—This is the beginning of the work in the mechanical engineering laboratory, and is intended for students taking the mechanical engineering course. A study is made of the use and construction of the steam engine indicator. The measurement of power developed by the steam engine under different conditions is made a prominent part of the work. The method of applying friction brakes and measuring transmitted power is also taken up. *I.; section A, Tu., 3, 4, 5; S., 1, 2, 3; section B, Tu., 8, 9; W., 1, 2, 3; S.; section C, Th., 3, 4, 5; S.. 1, 2, 3; (2).* Mr. OLIVER.

Required: Mechanical Engineering 1, 2; Math. 9.

4. ELEMENTS OF MACHINE DESIGN.—The basis of this work is found in *Klein's Elements of Machine Design. A series of plates* 26x40 inches is constructed, covering a wide range of machine parts. By means of a large number of practical examples, sufficient drill is obtained in using rational and empirical formulas to enable the student to make the calculations required when designing various parts of machines. Theoretical and practical problems relating to gearing are taken up and worked out in detail. Instruction in blue printing and duplicating is included in the course. For description see Chem. 22c, p. 208. *Kent's Mechanical Engineer's Pocket-book;*

also Unwin's Machine Design. I., II.; (divides time with M.E. 2); daily; 1, 2, 3, 6, 7, 8; (2½). Mr. RANDALL.

Required: General Engineering Drawing 1, 2.

5. MECHANISM.—This course includes a study of plane motion, following the methods of Reuleaux, and a study of the nature and equivalence of mechanisms. Determination of instantaneous centers and centrodes. Determination of velocities of important points of familiar mechanisms. Construction of acceleration diagrams. The transmission of motion in mechanisms by gearing, cams, links, etc. Trains of mechanism, analysis of difficult mechanisms. Particular attention is paid to problems relating to motions of gearing, steam-engine mechanisms, parallel motions of indicators, governors, link motions, valve gears, and indicator riggings. *I.; M., W., F.; 2, 3; (3).* Assistant Professor GOODENOUGH.

6. HEAT ENGINES.—The application of the theory of thermodynamics to gas and gasoline engines and hot air engines. A study of the modern forms of heat engines. Lectures and assigned readings. *I.; Tu., Th.; (2).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1; Physics 1, 3.

7. THERMODYNAMICS.—The fundamental principles underlying the transformation of heat into work, more especially as exemplified in the steam engine, are carefully studied. Considerable attention is paid to the solution of numerous examples, such as will arise in steam, air, or gas engineering. Drill is given in the rapid and accurate use of standard steam tables. *I.; M., W., F.; 1; (3).* Assistant Professor GOODENOUGH.

Required: Math. 9; Theoretical and Applied Mechanics 1; Physics 1, 3.

8. MECHANICS OF MACHINERY.—This is a study of the theoretical principles involved in the construction of hoisting apparatus, pumping engines, air compressors, fans, blowers, machinery for transmitting power, locomotives, pile drivers, and other machinery of this character. *II.; M., Tu., W., Th.; 1; (4).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 5, 7, 14.

9. ADVANCED DESIGNING.—The work in this course comes under two heads.

Original Design: This part of the course is intended more especially to develop and train the student's inventive ability. The work begins with simple problems and extends to more difficult designs as the student progresses. The machines are to be designed

for accomplishing a certain prescribed work. Often but a single piece is handed the student, and a machine is required which will produce a given number of these pieces per hour.

Advanced Design: This includes primarily the design of heavy machinery, such as punches, shears, presses, cranes, derricks, etc., machinery subjected to heavy and variable stresses. The design of attachments to existing machines, or the complete design of some machine that can be built in the shops, is often a part of this work.

A large amount of study of existing machines is required. The student is taught to consult the standard works on designing, such as *Unwin, Reuleaux, Klein, Bach's Maschinenelemente, and Richards. I.; Tu., Th.; 2, 3, 4; (2). II.; M., W., Th.; 2, 3, 4; (3).* Professor BRECKENRIDGE and Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 8, and 14.

10. ESTIMATES, SPECIFICATIONS, AND SUPERINTENDENCE.—Calculations and estimates are made as to the cost of machinery, power plants, boilers. chimneys, systems of piping, engines and their foundations, different methods of power transmission.

Also forms of contracts and specifications are studied. *II.; Tu.; 2, 3; (1).* Professor BRECKENRIDGE.

Required: Theoretical and Applied Mechanics 1, 2, 3.

12. ADVANCED MECHANICAL ENGINEERING LABORATORY.—This work is a continuation of the work begun in the junior year. Experiments are made with engines, pumps, motors, injectors, and boilers to determine under what conditions they may be expected to give a maximum efficiency. Tests of plants in the vicinity are made, of which carefully prepared reports are always required. The dynamometer car and the railway test car described under the equipment of the department give unexcelled opportunities for experimental railway engineering. Advanced constructive work in the shops is assigned to groups of students, in order to impress upon them the intimate relation existing between the designing room and the shop. *Carpenter's Experimental Engineering. I.; M., F.; 2, 3, 4; and 6, 7, 8; (4). II.; F.; 1, 2, 3; and 6, 7, 8; (1).* Professor BRECKENRIDGE, Mr. SCHMIDT, and Mr. OLIVER.

Required: Theoretical and Applied Mechanics 1, 2, 3; Mechanical Engineering 1 to 7, 14.

13. MECHANICAL ENGINEERING LABORATORY.—This is a laboratory course for students in other departments of the Engineering College. The student is taught to apply the indicator to different engines and to make the usual calculations of horse power and steam

consumption as given by the diagrams. Correct forms of reducing motions are explained. The reading of indicator diagrams and valve setting are also taught. *II.; section A, M., 2, 3, 4; Tu., 1, 2, 3; section B, M., 2, 3, 4; Th., 1, 2, 3; M., section C, 2, 3, 4; Th., 6, 7, 8; (2).* Mr. OLIVER.

Required: Mechanical Engineering 1, 2; Math. 7, 9.

14. HIGH SPEED STEAM ENGINE AND VALVE GEARS.—In this course the relations between piston speed, expansion, and quiet running are carefully studied. The student is given the problem of designing an engine that will develop a prescribed maximum and minimum horse power and run smoothly at all loads within its range. Each part of a complete engine is designed, and detailed drawings are made and traced, so that each member of the class may have a complete set of blue prints.

The application of graphical diagrams as an aid in the study and design of valves for steam distribution in the engine cylinder is carefully brought out. Determination of the dimensions of steam passages, single valve gears, double valve gears, equalization of steam distribution, application of diagrams to existing types of engines. A critical study of the shaft governor. *Klein's High Speed Steam Engine. I.; Tu., W., Th.; 6, 7, 8; (3).* Assistant Professor GOODENOUGH.

Required: Mechanical Engineering 1 to 7, 16, 17; Theoretical and Applied Mechanics 1, 2.

16. STEAM ENGINES.—A study of the details of steam engines. Elementary principles of transformation of heat into work. Laws of expansion of steam. The mechanics of the steam engine. Valves and valve gears. The indicator diagram, condensers, steam jackets, super-heaters, and compound engines. *The Steam Engine, Holmes. I.; section A, Tu., Th., 2; section B, Tu., Th., 1; section C, M., W., 3; section D, M., W., 1; (2).* Mr. RANDALL.

Required: Physics, 1, 3; Mathematics 9.

17. STEAM BOILERS.—Materials used in the construction of boilers. Proportions and strength of riveted joints. Incrustation, explosions, combustion, safety appliances, feed apparatus, boiler trials. *Peabody and Miller's Steam Boilers. II.; 3 sections; M.; 1, 2, 3; (1).* Mr. RANDALL.

Required: Physics 1, 3; Mathematics 9; Chem. 1.

18. GRAPHICAL STATICS OF MECHANISM.—Graphical determination of the forces acting at different points in machines used for hoisting, crushing, punching, and transmitting motion, taking into account the resistances offered to motion by frictional resistances.

Effect of sliding, rolling, and journal friction, chain friction, tooth friction, stiffness of ropes and belts. Graphical determination of efficiencies. *Graphical Statics of Mechanism, Herrman-Smith. II.; W; 6, 7, 8; (1).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 1, 2; Mechanical Engineering 5.

19. SEMINARY.—Work supplementary to other studies of the senior year. Presentation of papers on assigned subjects. Contributed papers on current topics. Discussion of and criticisms on new inventions. *I.; W.; 2, 3. II., 6, 7; (1).* Professor BRECKENRIDGE.

20. SHOP PRACTICE FOR SPECIAL STUDENTS.—This course is open to those entering as special students, as defined elsewhere under "Admission." The work will be arranged after consultation. The work done does not count for a credit for graduation in any of the technical courses. *Arrange time.* Mr. CLARK.

21. FORGE SHOP PRACTICE.—This course is designed for students taking the course in Agriculture. The work covers instruction in forging, such as will be of use to the practical farmer. The course may be started at the beginning or middle of either semester; *arrange time at 1, 2, 3, or 6, 7, 8; nine hours a week; (2).* Mr. JONES.

22. WOOD SHOP PRACTICE.—This course is intended for students taking the course in agriculture. Students should arrange with the instructor for nine hours' work each week. *I. or II.; 1, 2, 3, or 6, 7, 8; (3).*

COURSES FOR GRADUATES

Primary

101. Advanced Machine Design.
102. Graphics and Kinematics.
103. Mill Engineering.
104. Steam Engineering.
105. Experimental Engineering.
106. Thermodynamics.
107. Pneumatics.
108. Hydraulic Machinery.
109. Mechanical Technology.
110. Translation of Technical Engineering Work.
111. Heat Engines and Gas Engineering.
112. Locomotive Engineering.
113. Mechanical Refrigeration.

Secondary

120. Any primary offered in the College of Engineering.

Primary subjects may be taken as secondary in any course for the master's degree in the College of Engineering.

121. Indexing and Classification of Engineering Literature.

MECHANICS, THEORETICAL AND APPLIED

1. Analytical Mechanics.—The Mechanics of engineering, rather than that of astronomy and physics, is here considered. In addition to fixing the fundamental concepts and demonstrating the general principles of equilibrium and motion, application of principles and methods is made to numerous and varied engineering problems in such a way that the student must discriminate in the use of data and in the statement of conditions. As mathematical processes and forms express most readily and quickly the rules and methods for the solution of these problems, such training is given with special care. This subject requires a thorough working knowledge of the mathematics preceding it in the course. The methods of the calculus are used whenever preferable.

Outline of the subject: Nature and measure of force; composition and resolution of forces; moments; conditions of equilibrium; resultant of systems of forces; center of gravity; moment of inertia; rectilinear and curvilinear motion, and the relation between such motion and the constraining and accelerating forces; dynamics of a rigid body; momentum and impact; work, energy, and power; mechanical advantage. *Bowser's Analytical Mechanics. I.; first 14 weeks; daily; section A, 1; section B, 2; (4).* Professor Talbot.

Required: Mathematics 9.

2a, b. Resistance of Materials.—In the treatment of this subject it is the aim to give the student a thorough training in the elementary principles of the mechanics of materials, to follow with such experiments and investigations in the materials laboratory as tend to verify the experimental laws, and to add such problems in ordinary engineering practice as will train the student in the use of his knowledge. Attention is also given to the quality and requirements for structural materials.

Outline of the subject: Elasticity of materials; stresses and strains; experimental laws; working strength for different materials; resistance of pipes and riveted joints; bending and resisting moment, shear, and elastic curve of cantilever, simple, restrained, and continuous beams; column formulas; torsion and shafts; maximum internal stresses in beams; fatigue of metals; working strength for

repeated stresses; resilience; reliability of the common theory of flexure, as shown by actual experiment; design and strength of rolled and built beams and columns; specifications for materials and methods of testing. *Merriman's Mechanics of Materials. I.; last four weeks; daily; section A, 1; section B, 2. II.; first 7 weeks; Tu., W., Th., F.; section A, 1; section B, 2; arrange for one laboratory period of two hours each week; (3).* Professor TALBOT.

Required: Math. 9; Theoretical and Applied Mechanics 1.

3. HYDRAULICS.—In hydraulics the instruction is by text-book and laboratory work. The laws of the pressure and the flow of water and its utilization as motive power are considered. Experimental work in the hydraulic laboratory gives training in the observation and measurement of pressure, velocity, and flow, and in the determination of experimental coefficients.

The subject covers the following: Weight and pressure of water; head; center of pressure; velocity and discharge through orifices, weirs, tubes, nozzles, pipes, conduits, canals, and rivers; measurement of pressure velocity, and discharge; meters and measurements; motors, turbines, and water wheels; water power and transmission of power. *Merriman's Hydraulics. II.; last 11 weeks; Tu., W., Th., F.; section A, 1; section B, 2; arrange for one laboratory period of two hours each week; (3).* Professor TALBOT.

Required: Mathematics 9; Theoretical and Applied Mechanics 2.

4. APPLIED MECHANICS.—To be taken instead of Analytical Mechanics. The course of study and topics studied will be nearly identical. *Wright's Mechanics. I.; M., W., Th., F.; 1; (4).* Assistant Professor McLANE.

Required: Mathematics 6.

5. STRENGTH OF MATERIALS.—To be taken instead of Resistance of Materials. The course of study will be nearly the same, though somewhat simplified. *Merriman's Mechanics of Materials. II.; M., W., F., 3; Th., 4; laboratory, W., 8 and 9; (4).* Assistant Professor McLANE.

Required: Mathematics 6; Theoretical and Applied Mechanics 4.

COURSES FOR GRADUATES

101. Analytical Mechanics.
102. Resistance of Materials.
103. Hydraulics and Hydraulic Engineering.
104. Laboratory of Applied Mechanics.

MILITARY SCIENCE

1. Theoretical Instruction.—Infantry drill regulations. For all male students. *II.; (1).* Professor Fechét.

2. Practical Instruction.—Infantry—School of the soldier; company and battalion; evolutions of the regiment. Artillery—School of the cannoneer and battery dismounted. Freshman and sophomore years. *I., II.; (1).* Professor Fechét.

3. Theoretical Instruction.—Sophomore, junior, and senior years; one hour each week. Military administration, field engineering, and elements of military science. This course is obligatory upon commissioned officers, and open to others. Professor Fechét.

Authorized text-books.—United States Drill Regulations; United States Army Regulations (1895); Manual of Field Engineering (Beach); Elements of Military Science (Wagner).

MINERALOGY

1. Elements of Mineralogy.—(a) The first term's work is a general introduction to the subject. Instruction includes lectures and laboratory practice. In the lectures, which occur on specified days (2 or 3 each week), such subjects as follow are discussed: Genesis of minerals; conditions favoring their deposition; origin of the massive and crystalline forms; relationships of minerals and their classification; the physical properties of minerals, as color, luster, hardness, gravity, streak, etc., with the conditions which may cause these properties to vary; and the elements of crystallography, including a study of the typical whole, half, and quarter forms of each system, and their identification when in combination.

In the laboratory the student is first made acquainted with the simplest trustworthy methods for proving the presence or absence of the acids and bases. He is then required to determine a large number of species by their physical and chemical properties only.

(b) Petrography of Crystalline Rocks: The instruction under this topic is given by lectures and laboratory work. The subjects included are the classification of rocks, the methods used in their determination, the conditions governing the formation of each species, the decompositions to which they are liable, and the products of these decompositions. Each student is supplied with a set of blowpipe tools and reagents, and a series of hand specimens covering all the common species of rocks. The course is continued under Geology 1b. *I.; daily; 1, 2; (5).* Professor Rolfe and Mr. Fox.

Required: Chemistry 1.

2. Advanced Mineralogy.—(a) Crystallographic Mineralogy. During the first part of the semester a mere detailed study of the forms of crystals and their combinations is made. The student is required to identify many species of minerals by measuring their angles with the contact or reflecting goniometer, and calculating their crystallographic constants.

(b) Optical Mineralogy. About eleven weeks are devoted to the microscopic determination of rock-forming minerals. *II.; daily; 3, 4; (5).* Professor Rolfe and Mr. Fox.

Required: Mineralogy 1.

MUNICIPAL AND SANITARY ENGINEERING

1. Road Engineering.—The value and importance of road improvement in country highways and the best means of securing it are considered, together with the principles and details of construction of earth, gravel, and macadam roads. In city streets, the methods of construction, cost, durability, and desirability of the various kinds of pavement, and the questions of grades, cross-sections, methods of assessment of cost, and methods of maintenance and cleaning are treated. *Byrne's Highway Construction. Lectures and Reading. II.; W.; 3; (1).* Professor Baker.

Required: Math. 4; General Engineering Drawing 1, 2; Civil Engineering 1, 2, 3, 4.

2. Water Supply Engineering.—This subject is intended to cover the principal features of the construction of water works, including the tests and standards of purity of potable water; the choice of source of supply; the designing of the distribution system, pumps and pumping machinery, reservoirs, and stand-pipes. *Lectures; Folwell's Water Supply Engineering. I.; M., Tu., W., Th.; 4; arrange for drafting, 12 periods; M., 6, 7, 8; (4).* Professor Talbot.

Required: Theoretical and Applied Mechanics 1, 3; Chemistry 1; Mechanical Engineering 16.

3. Sewerage.—The design and methods of construction of sewerage systems of cities, including the following: Sanitary necessity of sewerage; water carriage systems, both separate and combined; surveys and general plans; hydraulics of sewers; relation of rainfall to storm water flow, and determination of size and capacity of sewers; house sewage and its removal; form, size, design, and construction of sewers and sewer appurtenances; modern methods of sewage disposal; estimates and specifications. *Lectures; Folwell's*

Sewerage. II.; M., W., F.; 3; arrange for drafting, 10 periods; M., 3, 4, 5; (3). Professor TALBOT.

Required: Theoretical and Applied Mechanics 1, 3; Chemistry 1.

5a. BACTERIOLOGY.—For students in Municipal Engineering. This course includes the identification and classification of bacteria, and of allied organisms, their relations to health and to disease, the methods of separation and cultivation, and the methods of air and water analysis. The laboratory is furnished with sterilizers, culture ovens, microscopes, etc., and students have abundant opportunity to do practical work. This course follows Civil Engineering 4a. *I., last 7 weeks; daily; 6, 7; (2).* Professor BURRILL.

6. WATER PURIFICATION, SEWAGE DISPOSAL, AND GENERAL SANITATION.—This work includes the consideration of impurities in water supplies and the study of the methods and processes of their removal; the modern methods of sewage disposal by filtration, chemical precipitation, irrigation, etc., with a study of representative purification plants; garbage collection and disposal; sanitary restrictions and regulations and general sanitation. Lectures and seminary work. *II.; daily; 4; (5).* Professor TALBOT.

Required: Municipal and Sanitary Engineering 2, 3, 5a; Chemistry 1, 3a.

COURSES FOR GRADUATES

Water Supply Engineering

101. Tanks, Stand-Pipes, and Reservoirs.

102. Sources and Requirements of Water Supply for a City and Removal of Impurities.

103. Water Works Management and Economics.

104. Pumps and Pumping.

105. General Water Works Construction.

106. Biological and Chemical Examination of Potable Water.

107. Description of Water Supply Systems.

Sewerage

111. Sewage Purification.

112. Sewage Disposal Works.

113. General Sewerage Design and Construction.

114. City Sanitation.

115. Description of Sewerage Systems.

Road Engineering

118. Economic Aspect of Good Roads and Pavements.

119. Construction of Roads and Pavements.

Miscellaneous Subjects

121. Critical Description of Engineering Construction.

122. Translation of Technical Engineering Work from French or German.

123. Any Primary in Civil Engineering.

124. Any Primary in Theoretical and Applied Mechanics.

125. Any Primary in Mathematics, Mechanical Engineering, or Electrical Engineering—Secondary.

126. Indexing of Municipal and Sanitary Engineering Literature in Engineering Periodicals.

MUSIC

Course 1 will be counted for credit toward the regular degree for students in the College of Literature and Arts, provided they are at the same time enrolled *in the School of Music*. Courses 7 and 8 are counted for credit for all students who take them.

1. History of Music.—Lectures on the development of music from its beginning among the Greeks to the present day, including the rise of dramatic music, the origin and progress of the oratorio, the evolution and development of instrumental forms, and studies in the lives of the composers. Assigned collateral readings. *I., II.; arrange time; (3).* Mr. Scheld.

2. Theory of Music.—a. A course in harmony, two hours a week, in class, through three semesters. *Emery's Harmony*, with additional exercises. *Weitzman's Theory of Music. (13 in all.)*

b. A course in counterpoint, two hours a week in class through one semester. *Richter's Counterpoint. (3.)*

c. A course in fugue, two hours a week in class through one semester. *Richter's Fugue. (3.)*

d. A course in musical analysis, which may be taken at the same time with the studies in counterpoint and fugue. The second, third, and fourth parts of this course are open only to advanced students showing special aptitude. *(3.)* Mr. Scheld.

3. Course for the Piano.— (a) *Preparatory.* This course is equivalent to three years' work. It includes formation and position of fingers, hands, wrists, and arms, properties of touch, principles of technique, thorough drill in scale and arpeggio playing, and exercises in accent, rhythm, and expression. Music used: Herz, Scales and Exercises; Loeschhorn, Op. 65, 66; Lemoine, Op. 37; Heller, Op. 45; Bertini, Op. 29, 32; Czerny, Op. 299, Bks. 1, 2; Bach's Little Preludes; also sonatinas and easier sonatas and com-

positions by Clementi, Kuhlau, Haydn, Mozart, Mendelssohn, Merkel, Dussek, Diabelli, Grieg, Bargiel, and others. Miss Fox.

(b) *Collegiate.* First year. Studies in development of technique; Czerny, Op. 299, Bks. 3, 4; Czerny, Octave Studies; Cramer, Etudes; Jensen, Etudes; Bach, Two-Voice Inventions and French Suites; sonatas of Haydn and Mozart; easier Sonatas of Beethoven; Songs Without Words, Mendelssohn; compositions (smaller works) of Beethoven, Chopin, Schubert, Raff, Greig, Chaminade, Moszkowski, and others. *(10 in all.)* Professor Jones and Miss Fox.

Second Year. Daily technique; Czerny, Op. 740; Bach, Three-Voice Inventions and English Suites; sonatas and other compositions of Scarlatti, Beethoven, Schubert, Schumann, Mendelssohn, Weber, Raff, Rubinstein, Saint Saens, Godard, MacDowell, and others. *(13 in all.)* Professor Jones and Miss Fox.

Third Year. Selections: Clementi, Gradus ad Parnassum; Moscheles, Op. 70; Kullak, Seven-Octave Studies, Bk. 2; Bach, Well-Tempered Clavichord; sonatas and concertos by Mendelssohn, Weber, Beethoven, Hummel, Brahms, etc.; selections from works of Bach, Chopin, Schubert, Schumann, Brassin, Rubinstein, Liszt, Moszkowski, Scharwenka, and other modern composers. *(17 in all.)* Professor Jones.

Fourth Year. Selections: Octave Studies; Clementi, Gradus, continued; Bach, Well-Tempered Clavichord, continued; Chopin, Etudes; Henselt, Etudes; Rubinstein, Etudes; sonatas by Beethoven, and concertos and other compositions by the great masters, classic and romantic, both of the older and the more modern schools. *(17 in all.)* Professor Jones.

4. a and b. Course for the Organ.—Similar preparatory and collegiate courses for the organ will be offered for anyone caring to make this the principal instrument. Professor Jones.

5. Course for the Voice.—(a) *Preparatory.* The placing of the voice and proper position of the mouth and throat. Randegger's Singing. The first fifteen of the Fifty Conçone Studies. Simple songs for rhythm, accent, and proper pronunciation of words.

(b) *Collegiate.* First Year: Voice production, Randegger's Singing, continued. All the Fifty Conçone Studies. Songs of Mendelssohn, Schubert, and those of good modern composers. *(10 in all.)*

Second Year: Voice Production. Viardot-Garcia's Hour of Study. Book I. for technical work. Twenty-five and Fifteen Conçone Studies for soprano and tenor and the Forty Conçone for alto

and bass. Songs of German, French, and English composers, and simple selections from operas and oratorios. *(13 in all.)*

Third Year: Voice production. Viardot-Garcia's Hour of Study, Book II. Bordogni's Thirty-six Studies for soprano or tenor, its equivalent, Sieber or Bordese for alto or bass. Selections from oratorios and from French, German, and Italian operas. Songs of considerable difficulty by German, English, French, and Italian composers. *(17 in all.)*

Fourth Year: Voice production. The Twenty-four Panofka Studies. Lütgen's Operavocalisen, Book II. Italian, French, German, and English songs of all standard composers. Solos and concerted work from the modern as well as the standard operas and oratorios. *(17 in all.)* Miss FERNIE.

6. COURSE FOR THE VIOLIN.—(a) *Preparatory.* Violin methods by Hermann, Kayser, Sitt, Mazas, etc. Schradieck's Technical Studies. Etudes by DeBeriot, Murts. Easy solos.

(b) *Collegiate.* First Year: Etudes by Kreutzer, Mazas, Fiorillo, etc. Concertos by Viotti, Rode, Kreutzer, DeBeriot. Sonatas by Mozart, Beethoven, Handel, Gade. *(10 in all.)*

Second Year: Etudes by Rode, Gavinies and Campagnoli, Concertos by Spohr, Bruch, Vieuxtemps, Molique, etc. Sonatas by Beethoven and Grieg. *(13 in all.)*

Third Year: Caprices by Paganini. Concertos by Bruch, Mendelssohn, Saint Saens, Joachim. Ensemble work. *(17* in *all.)*

Fourth Year: Bach sonatas. Concertos by Beethoven, Bruch, Brahms, Tschaikowsky, Dvorak, Saint Saens. Ensemble work. *(17 in all.)* Mr. SCHELD.

7. University Orchestra. *Two hours' rehearsal once a week throughout the year. (2.)* Mr. SCHELD.

8. University Choral Society. *One hour rehearsal once a week throughout the year. (1).* Miss FERNIE.

PALEONTOLOGY

1. ADVANCED PALEONTOLOGY.—The work outlined under geology 1d (p. 230) can do little more than introduce the general subject. To those who desire a better acquaintance with paleontology a course of one or two semesters is offered.

This course includes: (a) Discussion of the biological relations to fossil forms along the lines indicated in Williams' Geological Biology; (b) a discussion of the principles of classification as applied to fossils, together with the characteristics which distinguish the larger groups, using Nicholson, Bernard, and Zittel as guides;

(c) a study of the distribution and variations of the genera and species of one or more of the important groups as illustrated by the collections of the University, using the various state reports and Miller's Handbook as aids. Ten hours a week. A major in botany and zoölogy would aid the student greatly in this work, but neither is required. See under mineralogy and geology. *I., II.; daily; 3, 4; (5).* Professor Rolfe and Mr. Fox.

Required: Geology 1.

PEDAGOGY

(See Education, page 219.)

PHILOSOPHY

1. Logic.—For the required credit in philosophy, students may select either of the following courses:

a. This course considers the nature of judgment and inference. Emphasis is laid upon practice in division, definition, forms of syllogism, deductive and inductive fallacies. This course is recommended to students who are interested in psychology or philosophy. *I.; M., W., F.; 2; (3).*

b. Special attention is given to fallacies and to the problems, grounds, and principles of induction. The study is designed not only to direct the student in practical reasoning and correct thinking, but also to familiarize him with the principles and methods of scientific investigation. *II.; M., W., F.; 2; (3).* Professor Daniels.

2. Outlines of Philosophy.—A general introduction to the study of philosophy. *I.; M., W., F.; 4; (3).* Professor Daniels.

3. Ancient and Mediaeval Philosophy.—A rapid survey is taken of the development of speculative thought, beginning with the early Greek philosophers and continuing through the mediæval period. *I.; Tu., Th.; 3; (2).* Professor Daniels.

4. Modern Philosophy.—This course considers the formation and development of the problems and conceptions in philosophy from Déscartes to the present time. Selections from the philosophical masterpieces of this period are carefully studied. Special emphasis is laid upon the philosophy of Kant. *II.; daily; 3; (5).* Professor Daniels.

5. Advanced Philosophy.—The seventeenth century philosophy. A critical study of Déscartes, Spinoza, and Leibnitz. *I., II.; Tu., Th.; 7; (2).* Professor Daniels.

Required: Two semesters in philosophy or psychology.

6. Practical Ethics.—In this course those questions which bear the closest relation to life and conduct are raised and discussed. The duties of the individual, the family, and the state are among the subjects considered. Special subjects in social ethics may be taken up. *I.; Tu., Th.; 1; (2).* Professor Daniels.

7. History and Criticism of Ethical Theories.—A careful and historical examination of the various types of ethical theory, including rational, hedonistic, eudemonistic, esthetic, and evolutional ethics. It is designed to make the student as familiar as the time allows with the writings of representative men of the various schools. *II.; M., W., F.; 1; (3).* Professor Daniels.

8. Esthetics.—A brief history and a critical study of the various theories of the beautiful. Lectures and assigned readings. *II.; Tu., Th.; 4; (2).* Professor Daniels. [Not given in 1901-1902.]

COURSE FOR GRADUATES

101. The Philosophy of Kant.

PHYSICAL TRAINING

FOR MEN

1. Gymnasium Practice.—Two half hours' class-work, and two half hours' prescription exercises, each week. *Required of freshmen throughout the year. With course 3, 2½ hours.* Professor Shell.

2. Gymnasium Practice.—Two half hours' class-work and two half hours' prescription exercises. *Throughout the year. With course 4; (2½).* Professor Shell.

Required: Physical Training 1, 3.

3. Lectures.—Lectures upon bodily health, including such subjects as the bath, sleep, diet, ventilation, clothing, injuries from over-work and study, sedentation, tobacco, alcohol, improper posture, etc. *Once a week throughout the year. Freshmen are required to attend this course. With course 1; (2½).* Professor Shell.

4. Lectures.—Muscular form and action, effects of exercise, causation of fatigue, breathlessness, coördination, automatism, deformities, etc. *Once a week through the year. With course 2; (2½).* Professor Shell.

Required: Physical Training 1, 3.

5. Theory of Physical Training.—For those preparing as instructors. Study of the systems of gymnastics; methods of teaching; class work; use of apparatus; effects on body; measurements;

testing prescription. *Throughout the year; (2).* Professor SHELL.

Required: Physical Training 2, 4.

6. COMPETITIVE ATHLETICS.—History of games and sports; general training; special forms and methods of coaching for track, fencing, wrestling, boxing, base ball, foot ball, basket ball, hockey, etc. *Throughout the year; (2).* Professor SHELL.

Required: Physical Training 2, 4.

FOR WOMEN

7. PRACTICE.—Class and prescription exercises in the gymnasium and field. *Three hours a week throughout the year. Required of freshmen. With course 9; (3).* Miss CARPENTER.

8. PRACTICE.—*Three hours a week throughout the year; (2).* Miss CARPENTER.

Required: Physical Training 7, 9.

9. HYGIENE.—The same as Physiology 6, which see. *Required of freshmen. With course 7; (3).* Professor KEMP.

PHYSICS

1. GENERAL PHYSICS.—A course of experimental lectures. The subjects for the first semester are mechanics, heat and sound; for the second semester, electricity and magnetism and light. The course is always to be taken in connection with the laboratory course, Physics 3. *I., II.; Lectures, M., W., F.; 5; Quiz, Tu. or Th.; 3; (3).* Professor CARMEN, Mr. ———.

Required: Mathematics 3 or 4.

2. MINOR COURSE IN PHYSICS.—The course includes selected parts in mechanics, heat, light, and electricity, and is designed for students in general science and in medical courses. *II.; Lectures, Tu., Th.; 5; Laboratory, 7 periods; arrange time; (5).* Professor CARMAN, Assistant Professor QUICK, Mr. ———.

Required: Mathematics 3 or 4.

3. INTRODUCTION TO PHYSICAL MEASUREMENTS.—Laboratory experiments running parallel with Physics 1, and required of the same students. The experiments are quantitative, illustrative of lectures, and introductory to more advanced laboratory work. *I., II.; 3 periods; arrange time; (2).* Assistant Professor QUICK, Mr. ———.

Required: Mathematics 3 or 4.

4. ELECTRICAL AND MAGNETIC MEASUREMENTS.—Recitations and laboratory. The course of recitations and lectures covers the elementary mathematical theory of electrostatics, magnetism, magnetic

properties of iron, electrodynamics, and direct, alternating and polyphase currents. In the laboratory the usual electrical and magnetic measurements are made, the work running parallel with the recitation work. *I., II.; Lecture, Tu., Th.; 6; Laboratory; arrange time; (4).* Assistant Professor SAGER.

5. ADVANCED PHYSICAL MEASUREMENTS.—A laboratory course supplemented by lectures. The following lines of work are offered. Each line of work is arranged to take ordinarily one semester, but in special cases a different arrangement of experiments may be made.

(a) Mechanics.—A course of exact measurements of mass, length, volume, densities, time, and gravity, using the balance, dividing engine, cathetometer, chronograph, etc.

(b) Light.—Measurements of indices of refraction and wave lengths, using the spectrometer with prisms and grating, and the concave grating with its mounting, also using the optical bench in experiments in interference, etc.

(c) Electricity and Magnetism.—A course of exact measurements of resistance, current, electromotive force, capacity, and magnetic quantities.

(d) Electricity and Heat.—A course of measurements of resistance, current, and electrolytic conductivity, and some measurements of specific heat and thermal capacity. Designed particularly for students in chemistry or general science. *I., II.; arrange time; (3 or 5).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 1, 3, or 2.

6. INTRODUCTION TO THEORETICAL PHYSICS.—A course of lectures and recitations on some branch of theoretical physics.,The subjects taken in the last three years have been, mathematical theory of electricity and magnetism, advanced dynamics, and thermodynamics. The subjects for 1900-1901 will be mechanics, theory of potential, and the mathematical theory of electricity and magnetism. *I., II.; M., W., F.; 6; (3).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 1, 3, or 2; Mathematics 9.

7. INVESTIGATION OF SPECIAL PROBLEMS.—An advanced laboratory course in continuation of Physics 5. The student is given one or more special subjects of investigation to be conducted under the direction of the professors of the department. The machine shop of the department makes possible special and original apparatus. *I., II.; arrange time; (3).* Professor CARMAN and Assistant Professor SAGER.

Required: Physics 4 or 5, or equivalent.

8. Mathematical Physics.—A course of lectures and recitations. The subjects treated are changed each year, and are chosen to cover the general subject in two consecutive years, each year being complete in itself. The electromagnetic theory of light is the special subject for 1900-1901. *I., II.; arrange time; (3).* Professor Carman.

Required: Physics 5 or 6.

9. Advanced Electrical Measurements.—A course in the theory and practice of the calibration of electrical measuring instruments, using the potentiometer and other standard methods. *II.; arrange time; (1).* Assistant Professor Sager.

Required: Physics 4.

COURSES FOR GRADUATES

101. Advanced Physical Measurements and Investigation.

102. Mathematical Physics.

103. Mathematical Theory of Electricity and Magnetism for Engineers.

PHYSIOGRAPHY

1. Physiography.—Three objects are aimed at in this course. viz.: To promote the change in the method of teaching geography so generally advocated in recent years, to provide a rational basis for the study of geographic distribution of animals and plants, to place in their proper light the geographic factors in the history of man and his present well being.

The first part of the semester is devoted to a discussion of the general principles of meteorology, oceanography, and climatology. This is followed by a study of the physical geography of North America and Europe, with reference to the objects named above.

It is assumed that the student has a good understanding of political geography, and of the principles of land development, etc., as set forth in such works as Davis's Physical Geography, Mill's Realm of Nature, or Tarr's Physical Geography. *I.; daily; 3, 4; (5).* Professor Rolfe and Mr. Fox.

Required: Geology 1 or 3, or an approved entrance credit in Geology, or Physical Geography.

PHYSIOLOGY

1. Major Course.—This course is founded on the previous thorough training of the student in physics, chemistry, and zoölogy. The course is designed primarily to prepare those taking it to enter upon the study of medicine. The work begins with a comprehensive

study of the microscopic structure of the tissues in general, and later includes the structure of the organs in particular, with special relation to their functions. The course, together with courses in chemistry recommended for prospective medical students, will complete a very thorough study of physiological chemistry, so far as it relates to the normal composition and functions of the organs and excretions. Frequent demonstrations in experimental physiology are given before the class, and the student is required to perform a number of such experiments under the immediate direction of the instructor. In addition, the students, working in small groups, will be required to perform assigned experiments, and to submit their records and data for examination and criticism. Practical laboratory work is insisted on throughout. *I., II.; daily; 3, 4; (5).* Professor KEMP.

Required: Physics 1, 3; Chemistry 1, 2, 3a, 5a, 9, 9c: Zoölogy 2.

2. ADVANCED COURSE.—Continuation of Physiology 1 through a second year. This course is designed for students who wish to get as thorough a training as possible for the study of medicine, and who can afford to take the full science course at the University leading to the B.S. degree. The work will be made up of lectures, assigned reading, and experiments in the laboratory conducted by the students themselves, under the supervision of the instructor. Course 1 will necessarily give but a limited opportunity for such personal work on the part of the student. Course 2 will enable him to have a fair degree of experience with methods and apparatus used in the most advanced lines of medical study. *I., II.; daily; 3, 4; (5).* Professor KEMP.

3. INVESTIGATION AND THESIS.—The laboratory of the physiological department is well equipped with instruments of precision for research in histology, physiological chemistry, experimental physiology, and pharmacology. Every facility and encouragement, so far as the resources of the laboratory permit, are offered to those prepared to avail themselves of these for researches leading to theses for the bachelor's, master's, or doctor's degree, or for carrying on original work for publication.

4. MINOR COURSE.—This course is planned for literary students and for students of natural science specializing in other lines. Especial emphasis is laid upon those facts that serve as a basis for practical hygiene, and for helping students to teach physiology in high schools. It will consist of lecture demonstrations, recitations, and laboratory work. Students who have had chemistry and

zoölogy in high schools may be admitted to the course at the option of the instructors. *II.; daily; 7, 8; (5).* Professor KEMP.

Required: Chemistry 1; Biology 1.

5. SPECIAL PHYSIOLOGY. There are here included the following lines of laboratory work, any one or more of which may be pursued independently of the others: (a) The physiology of foods, and digestion; (b) the blood, circulation, and respiration; (c) the excretions, especially urine-analysis; (d) general physiology of nerve and muscle; (e) advanced vertebrate, especially human, histology. This course may be taken after Physiology 4, and is recommended for those who wish to work a year in Physiology without having the requirements to enter the class in Physiology 1. It may also be taken for less than five credits. Work to be arranged after consultation with Professor KEMP.

6. HYGIENE.—This course is offered to both men and women, and must be taken by young women who take physical training for credit. It is designed to impart a knowledge of the conditions of bodily health and activity. The course deals with those practical hygienic problems of everyday life that are wholly or in large part under the control of each individual. *I.; M.; 8; (1).* Professor KEMP.

PSYCHOLOGY

1. ELEMENTARY PSYCHOLOGY.—This course is intended for beginners in psychology. The whole field is covered as fully as the time will permit, and a substantial basis is given for further studies in psychology, philosophy, and education. James's Psychology is used as a text. *II.; M., W., F.; 2; (3).* Mr. ———.

Required: At least one year of university work.

2. EXPERIMENTAL PSYCHOLOGY.—The object of the course is to give the student an acquaintance with normal psychical phenomena and training in laboratory methods. The laboratory periods are devoted to experiments in sensation and the time relations in mental processes. Lectures, recitations, themes, and laboratory work. Two lectures weekly and six hours' laboratory work. *I.; lectures, M., W.; 4; arrange time for laboratory; (5).* Professor DEXTER and Mr. ——.

Required: Two years of university work.

3. THIS IS A CONTINUATIÒN OF COURSE 2. The laboratory method will be continued in the study of the higher psychic activities. The work is especially adapted to the needs of the teacher. *II.; lectures, M., W.; 4; arrange time for laboratory; (5).* Professor DEXTER and Mr. ——

Required: Two years of university work.

4. Genetic Psychology.—It is the plan of this course to take up in their natural order the various developmental stages of the human mind from the earliest days of infancy. The more substantial results of child study serve as a basis for the first part of the course, while the latter part is devoted to the phenomena of adolescence, and the intellectual problems confronting the youth. The development of the nervous system and growth of the body are traced in connection with the mental development, and the critical periods of both are given careful attention. The aim of the course is to serve as a basis for pedagogy, and to assist the student in solving. and from the standpoint of psychology, the ethical and social problems of his own life. *I.; Tu., Th.; 2; (2).* Mr. ———.

Required: Two years of university work.

8. Psychological Seminary.—In this course, for the coming year, the history of psychology will be taken up, beginning with Locke and continuing down through its experimental development, including the recent aspects of the subject. During the latter part of the year periodical literature will serve as the basis of reports. *I., II.; arrange time; (1).* Mr. ——.

Required: Psychology 1.

COURSE FOR GRADUATES

101. Research Course.—Though primarily for graduates, this course may be taken by seniors who give evidence of suitable preparation. If laboratory work, it must be preceded by psychology 1, 2, and 3. For other than a laboratory subject the required preparation will depend upon the subject. It is intended that work in this course shall result in contributions to science.

PUBLIC LAW AND ADMINISTRATION

1. Political Institutions.—Comparative study of modern political systems, their historical development and practical operation. Lectures, assigned readings, reports, and discussions. The first semester is devoted to the leading features of national and state government of the United States; in the second semester the governments of the leading European states are studied. In connection with History 2 this course makes a full study running through the year. (See announcement under History 2.) *I., II.; M., W., F.; 4; (3).* Professor Tooke.

2. Jurisprudence.—Elementary course in the origin, development, and classification of law, followed by an introduction to the fundamental principles of the English Common Law. *I., II.; Tu., Th.; 3; (2).* Professor Tooke.

3. Roman Law.—Early History. The classical jurisprudence. Legislation of Justinian. Influence of the Roman system. Readings and lectures. *I., II.; arrange time; (2).* Professor Scott.

4. International Law.—Sources and historical development. Essential powers of states, their rights and obligations. Laws and usage in times of war. *I., II.; Tu., Th.; 4; (2).* Professor Scott.

5. Comparative Administrative Law.—General principles of the administration law of the United States, England, France, and Germany. The appointment, tenure, and duties of officers. Historical and comparative study of local government. *I., II.; M., W.; 3; (3).* Professor Tooke. [Not given in 1901-1902.]

Required: Public Law and Administration 1, 2.

6. Comparative Constitutional Law.—A comparative study from original sources of the constitutions of the leading European states. In connection with Law 22, this course counts six semester hours. *I.; M., W.; 3; (2).* Professor Tooke.

Required: Public Law and Administration 1, 2.

7. Law of Municipal Corporations.—History and legal status of the American municipality. *II.; M., W.; 2; (2).* Professor Tooke.

9. Seminary in Municipal Institutions.—Open to graduates and seniors. *I., II.; arrange time; (2).* Professor Tooke.

RAILWAY ENGINEERING

1. Locomotive Engines.—This work is a study of the constructive features of the locomotive in all its parts and of their relations. The development, applications, and limitations of the various types and their special study with reference to the relations between boiler and cylinder capacity, weight on drivers, speed, hauling capacity, etc. Tendencies in design. Includes also a study of all accessory apparatus used in the operation of locomotives. *I.; Tu., Th.; 1; (2).* Mr. Schmidt.

Required: Theoretical and Applied Mechanics 1; Physics 1, 3; Mechanical Engineering 7.

2. Locomotive Engine Design.—The proportions and dimensions of standard locomotives are carefully studied. Calculations and designs relating to boiler and engine details, cylinder proportions for compound types of slide, valves and valve gears. *I.; Tu., W., Th.; 6, 7, 8; (3).* Assistant Professor Goodenough.

Required: Mechanical Engineering 1 to 7, 16, 17; Theoretical and Applied Mechanics 1, 2.

3. Shop Systems.—Lectures and readings. Visits of inspec-

tion. A study of the proceedings of the societies and railway clubs and the technical press. *I.; Tu., Th.; 2, 3, 4; (2).* Mr. SCHMIDT.

4. LOCOMOTIVE ROAD TESTS.—Arrangements for locomotive road tests have been perfected with several roads entering Champaign and Urbana. Already five locomotives have been equipped for this work and tests made in actual service conditions. This work is greatly facilitated by the use of the dynamometer and railway test cars which are now at the service of the department. This course includes also brake tests and other laboratory work. *I.; M., F.; (4).* Mr. SCHMIDT.

Required: Theoretical and Applied Mechanics 3; Mechanical Engineering 1 to 7, 14.

5. COMPRESSED AIR IN RAILWAY SERVICE.—This will include a careful study of the construction and operation of the air-brake system in detail. The air-brake instruction cars of the I. C. R. R. and the C. C. C. & St. Louis Ry. make frequent stops at these points, and the instructors in charge kindly devote sufficient time to illustrate and explain the operation of the air-brake.

The use of compressed air in shop service is also studied. *II.; W.; 6, 7, 8; (1).* Mr. SCHMIDT.

Required: Mechanical Engineering 7.

6. RAILWAY ESTIMATES.—A study of costs of materials and repairs. Forms of specifications for supplies. Costs of operation and maintenance of foreign and American practice compared. *II.; Tu.; 2, 3; (1).* Professor BRECKENRIDGE.

Required: Railway Engineering 1 to 4.

7. ADVANCED DESIGNING.—Under this head attention will be paid to details of rolling stock, pumps, gas and oil engines for water supply. Special machinery for repair shop service, turntables, and advanced problems relating to locomotive design. *II.; M., W., Th.; 2, 3, 4; (3).* Assistant Professor GOODENOUGH.

Required: Theoretical and Applied Mechanics 3; Railway Engineering 1, 4.

8. DYNAMOMETER CAR TESTS.—Investigations will be made under actual road conditions relating to hauling capacity of engines, train resistance, due to acceleration, grades, curves, and wind pressure. Air-brake service inspections. Automatic records of track conditions as to gauge, surface, joints, and elevation of rails. Tests at stationary plants and railway shops will be made.

Arrangements for careful and scientific sampling of fuels, boiler waters, oils, paints, varnishes, and railway supplies for analysis and tests will be included in this work. *II.; F.; (1).* Mr. SCHMIDT.

Required: Railway Engineering 4.

RHETORIC AND ORATORY

1. RHETORIC AND THEMES.—Required for students in the College of Literature and Arts. One two-page theme a week criticised by the class and by the instructor. Weekly report on assigned reading. Cairns' Forms of Discourse. *I, II.; M., W., F.; section A, 1; section B, 2; section C, 3; (3).* Miss KYLE and Mr. GRAHAM.

2. RHETORIC AND THEMES.—Required for students in the Colleges of Agriculture, Science, and Engineering. One two-page theme a week, with an occasional four-page theme, criticised by the class and by the instructor. Weekly report on assigned reading. Cairn's Forms of Discourse. *I.; M., W., F.; sections A, B, C, 2; section D, 3; sections E, F, 7; section G, 8. II.; M., W., F.; sections A, B, C, 2; sections D, E, F, 7; section G, 8; (3).* Miss KYLE, Mr. GRAHAM, and Mr. ADAMS.

3. ENGLISH COMPOSITION.—Daily themes one page in length with exercises not to exceed four pages in length every fortnight. All written work is criticised by the instructor, and, if necessary, is required to be rewritten. Wendell's English Composition. *I., II.; M., W., F.; section A, 3; section B, 4; (5).* Professor T. A. CLARK.

Required: Rhetoric and Oratory 1 or 2.

4a. ARGUMENTATIVE COMPOSITION.—Lectures on the principles of argumentation. Practice in the preparation of briefs and forensics. During the semester each student will write two briefs and two forensics, which are intended to illustrate the importance of analysis, evidence, constructive argument, refutation, and persuasion. *Baker's Principles of Argumentation. I.; M., W., F.; 4; (3).* Mr. ADAMS.

Required: Rhetoric and Oratory 1 or 2.

4b. EXPOSITION.—Practice in the preparation of formal addresses; study and analysis of modern orations with the object of understanding their general structure; criticism and suggestion regarding sequence, emphasis, climax, and illustration. *II.; M., W., F.; 4; (3).* Mr ADAMS.

Required: Rhetoric and Oratory 1 or 2.

5. ORAL DISCUSSION.—Weekly debates on economic and political subjects, preceded by briefs; criticism of form, delivery, and subject-matter. Adapted to the needs of students who have had experience in debating. *I., II.; Th.; 8, 9; (2).* Mr. ADAMS.

Required: Rhetoric and Oratory 1 or 2.

6a. ENGLISH COMPOSITION (Advanced Course).—Two three-

page exercises a week and four long themes a semester. Written criticism of themes by both students and instructor; all long themes to be rewritten after criticism. Bates's Talks on Writing English. *I.; M., W., F.; 2; (3).* Professor T. A. CLARK.

Required: Rhetoric and Oratory 1 and 3.

6b. ENGLISH COMPOSITION AND LITERATURE. The study of rhetorical principles, as seen in literary masterpieces. Rhetorical analysis of the essays of Swift, Lamb, Newman, Arnold, and others. Two three-page themes a week and one long exercise a semester. *II.; M., W. F.; 2;* (3). Professor T. A. CLARK.

Required: Rhetoric and Oratory 1 and 3.

7a. PUBLIC SPEAKING.—A course for practical training in public speaking, beginning with the recitation of simple narrative and descriptive selections and proceeding with more difficult extracts from orations, according to individual ability. The object is to secure naturalness in form and directness in delivery. Criticism and instruction regarding position, enunciation, volume, inflection, and gesture. *The number admitted to this course is limited to thirty-six. I.; sections on M., Tu., and F.; 7; (1).* Mr. ADAMS.

7b. PUBLIC SPEAKING.—Same as Rhetoric and Oratory 7a, beginning with the second semester. This course is not open to those who have taken Rhetoric and Oratory 7a. *II.; section A, M; section B, Tu.; section C, F; 7; (1).* Mr. ADAMS.

8. SEMINARY.—Methods of teaching English Composition. Open to senior and graduate students. *I. or II.; W.; arrange time; (1).* Professor T. A. CLARK.

SOCIOLOGY

[See under Anthropology and Economics, pp. 187, 216.]

SPANISH

1. GRAMMAR AND READING.—Edgren's Spanish Grammar; Knapp's Spanish Readings; Cervantes' Don Quixote; outlines of Spanish literature. *I., II.; M., W., F.; arrange time; (3).* Professor FAIRFIELD.

THEORETICAL AND APPLIED MECHANICS

[See Mechanics, p. 255.]

VETERINARY SCIENCE

1. ANATOMY AND PHYSIOLOGY.—The anatomy and physiology of the domestic animals, diseases of the bony structure and lameness.

The instruction is given by lectures aided by demonstrations with use of skeletons, and of other apparatus, as follows: Dr. Auzoux's complete model of the horse, which is in ninety-seven pieces and exhibits three thousand details of structure; *papier-maché* model of the horse's foot; the teeth of the horse; and dissections of animals. This work is supplemented with the study of text-books. Strangeway's Veterinary Anatomy, Mills's Animal Physiology, and Diseases of Horses and Cattle. *I.; daily; 3; (5).* Professor McIntosh.

2. Veterinary Materia Medica.—This subject, which treats of the agents for the cure of disease or injury, and for the preservation of health among domestic animals, is taught by lectures and text-books, illustrated by specimens of the drugs used in veterinary practice. The compounding of medicines also receives attention. Text-book, Finlay Dun's Veterinary Materia Medica. *I., II.; daily; 2; (5).* Professor McIntosh.

3. Theory and Practice of Veterinary Medicine and Surgery.—This subject is taught by lectures and text-books on the diseases of domestic animals, and is illustrated with specimens of morbid anatomy and by observations and practice at the free clinics. The latter are held at the Veterinary Infirmary once a week. The students assist in the operations, and thus obtain a practical knowledge of the subject. Dissections and *post-mortem* examinations are made as cases present themselves. Text-books, Diseases of Horses and Cattle, by D. McIntosh, and Williams's Practice of Veterinary Medicine and Surgery., *I. or II.; daily; 4; (5).* Professor McIntosh.

4. Minor.—The principal diseases of domestic animals, their symptoms and treatment. *II.; first half; daily; 3; (2½).* Professor McIntosh.

[Clinic on Wednesday for all courses.]

ZOÖLOGY

1. General Invertebrate Zoölogy.—This course is arranged with special reference to teachers of zoölogy and to students who intend to take either a general or a special course of some length in this subject or in entomology. Following upon zoölogy 10, it extends somewhat the series of type forms presented under that head, and lays the foundation for a knowledge of animal development. It is largely given, however, to a study of the invertebrate animals commonly found in Illinois, with special attention to their distribution, their habits, and their life histories, and to the adaptive structures

which exhibit or determine their relations to their environment. Field work and its methods are included in the course, and the organization of its instruction is such as to permit some diversity in the work of different students. *II.; lecture, M., W., F.; 2; laboratory, 7 periods; arrange time; (5).* Assistant Professor SMITH and Mr. McCLELLAN.

Required: Art and Design 1; an entrance credit in chemistry or Chemistry 1, Zoölogy 10 or Entomology 1.

2. VERTEBRATE ZOÖLOGY AND COMPARATIVE ANATOMY.—In the laboratory work of this course principal attention will be given to the anatomy of Necturus and to anatomical and systematic studies of fishes, birds. and mammals, especial reference being had to the anatomy of man. The more difficult parts of laboratory technology will be given in this course, which will also contain lectures on the general theory of organic development as illustrated by the doctrine of the descent of man. *I.; daily; lecture, Tu., Th.; 4; laboratory, 8 periods; arrange time; (5).* Assistant Professor SMITH.

Required: The same as for Zoölogy 1.

3. VERTEBRATE EMBRYOLOGY.—This course begins with a study of the sex cells and a discussion of theories of heredity, followed by a consideration of the early stages in the development of the egg. The formation of the vertebrate body is then studied in the amphibian, the chick, and the pig. Instruction is given in the preparation of embryological material and in graphic reconstruction from serial sections. *II.; daily; 4, 5; (5).* Mr. McCLELLAN.

Required: Zoölogy 2.

4. ADVANCED ZOÖLOGY.—Under this head is offered an opportunity for individual advanced work for one or two semesters along lines to be selected in consultation with the instructor. It may include field and systematic zoölogy, or a laboratory course in mammalian anatomy, but is otherwise essentially a research course for students specializing in zoölogy. One semester of this course will be required of all intending to graduate with a zoölogical thesis. If five or more students offer for the same work under this head they will receive class instruction, but otherwise students in this course will commonly be assembled as a class only for seminary work. From those taking this course selection of student assistants for the zoölogical laboratories will commonly be made, credit being given on the course for such assistance according to the recommendation of the head of the department, subject to the approval of the college faculty. *I., II.; arrange time; (5).* Assistant Professor SMITH.

Required: Zoölogy 1, 2.

5. Elemetary Entomology.—(See Entomology 1.)

6. General Entomology.—(See Entomology 2, 3.)

7. Practical Entomology.—(See Entomology 4.)

8. Thesis Investigation.—Candidates for graduation in the College of Science who select a zoölogical subject as a thesis are required to spend three hours a day during their senior year in making an investigation of some selected zoölogical subject. While this work is done under the general supervision of an instructor, it is in its methods and responsibilities essentially original work. *I., II.; daily; arrange time; (5).* Professor Forbes and Assistant Professor Smith.

Required: Two years in zoölogical courses, including one semester of Zoölogy 4.

9. Teachers' Course in Zoölogy.—This course is offered especially to prospective teachers of zoölogy in high schools or colleges. It will include a review of such parts of their earlier work as are most closely related to their prospective teaching, the subject being studied now from the standpoint of the teacher rather than that of the student merely. Additional work in the field, laboratory, and library will be given to enlarge the scope of the student's knowledge and to give practice in methods most likely to be useful to him. The management of excursions, the collection and preparation of material, the selection, assignment, and management of subjects for individual study, and the determination and study of the animal forms of a restricted locality, are examples of this work. High school courses of zoölogical study will be collected, compared, and criticised, and methods of management and instruction in secondary schools will be compared and discussed with reference to general pedagogical theory and to the special ends of the teacher of zoölogy. The work will be arranged in consultation with the educational department of the University, and the professors of that department will share in it as may seem necessary. Those taking this course will be given the preference, other things being equal, in selecting student assistants in zoölogy and in recommending teachers for secondary schools. Those taking the lectures only will receive a three-hour credit; those taking the field and laboratory work without the lectures will receive a two-hour credit. *II.; daily; 6, 7; (5).* Professor Forbes.

Required: Zoölogy 1; also Zoölogy 2, or Entomology 2, or Entomology 3.

10. Elementary Zoölogy—This is a field, laboratory, and lecture course, mainly on the morphology, physiology, and oecology of

type forms, and on the more obvious features of cytology and development. The work is so directed as to lead to an acquaintance with the simpler generalizations of zoölogical theory, and is intended especially as a preparation for the more extensive and thorough work of courses 1 and 2. It is also adapted to the needs of those who wish to give no more than a semester to a zoölogical course. Students who present an entrance credit in zoölogy or biology may take as a fractional course those parts of this work not covered in their previous study. *I.; daily; 1, 2; (5).* Assistant Professor SMITH and Mr. MCCLELLAN.

COURSES FOR GRADUATES

101. PLANKTON ZOÖLOGY.—Under this head instruction and practice will be given in modern methods of studying minute forms of aquatic life with the aid of a plankton apparatus and laboratory equipment. This work will include both a qualitative and a quantitative investigation of the minute zoölogical contents of a selected body of water, carried on systematically through a considerable period, and the generalization of the results of such study by the methods peculiar to the planktologist.

102. FRESH-WATER ICHTHYOLOGY.—The large collections of fishes belonging to the University and the State Laboratory of Natural History, together with the ichthyological library of the latter, will be open to students who wish to become acquainted with the ichthyology of a fresh-water situation. Both qualitative and quantitative studies of the fishes of a selected body of water will be made, and papers will be written presenting the results of personal studies in this field.

103. FRESH-WATER AND TERRESTRIAL ANNALIDS.—This is an application of the methods of the zoölogical laboratory to the study of the annelid worms of the land and of the inland waters of North America. The description of genera and species, practice in drawing for publication, and experimental work on the physiology and oecology of selected forms will be included in this course.

DEGREES

BACHELORS' DEGREES

The usual bachelors' degrees are conferred upon those who satisfactorily complete the courses of study described under the different colleges and schools. A candidate for a bachelor's degree must pass in the subjects marked *prescribed* in his chosen course, and must conform to the directions given in connection with that course in regard to electives. In the College of Literature and Arts, of Science, and of Agriculture, credit for 130 hours is required for graduation. In the College of Engineering, in the College of Law, and in the Schools of Music and Library Science the candidate must complete the course of study as laid down. The number of hours required includes five in military science, and two and one-half in physical training for men, and three in physical training for women. Men excused from the military requirements, and women who do not take courses in physical training, must elect in lieu thereof an equivalent number of hours in other subjects.

In all cases in which a thesis is required,* the subject must be announced not later than the first Monday in November, and the completed thesis must be submitted to the dean of the proper college by June 1st. The work must be done under the direction of the professor in whose department the subject naturally belongs, and must be in the line of the course of study for which a degree is expected. The thesis must be presented upon regulation paper, and will be deposited in the library of the University.

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*See requirements for graduation in the different colleges.

1. The degree of Bachelor of Arts is conferred on those who complete a course in the College of Literature and Arts.

2. The degree of Bachelor of Science is conferred on those who complete a course in the College of Engineering, of Science, or of Agriculture. The name of the course will be inserted in the diploma.

3. The degree of Bachelor of Laws is conferred on those who complete the course in the College of Law.

4. The degree of Doctor of Medicine is conferred on those who complete the course in the College of Medicine.

5. The degree of Bachelor of Library Science is conferred on those who complete the course in the School of Library Science.

6. The degree of Bachelor of Music is conferred on those who complete one of the courses in the School of Music.

7. The degree of Graduate in Pharmacy is conferred on those who have satisfied the requirements therefor in the School of Pharmacy.

ADVANCED DEGREES

No degrees are given for study *in absentia,* except that graduates of this University, who become members of the Graduate School and reside elsewhere, may receive a second, or master's, degree, upon the completion of their courses of study within not less than three years of the date of registration. For a graduate of this University, who has won recognized distinction in a special line of investigation, and who otherwise fulfills the conditions for a doctor's degree, the requirement of residence for that degree will be such as may be imposed by the General Faculty of the University, on presentation of the case by the Council of Administration. Advanced degrees are conferred by the Trustees of the University only upon recommendation of the General Faculty, based upon information furnished by the Council of Administration.

SECOND DEGREES

The second degrees conferred by this University are as follows:

Master of Arts, after Bachelor of Arts.

Master of Science, after Bachelor of Science in courses of the colleges of Agriculture and Science.

Master of Architecture, after Bachelor of Science in courses in Architecture and Architectural Engineering.

Civil Engineer, after Bachelor of Science in the course in Civil Engineering.

Electrical Engineer, after Bachelor of Science in the course in Electrical Engineering.

Mechanical Engineer, after Bachelor of Science in the course in Mechanical Engineering.

Pharmaceutical Chemist, after Graduate in Pharmacy.

Graduates of other colleges and universities which have equivalent requirements for baccalaureate degrees may be given second degrees determined in kind by comparison with the usage described above.

All candidates for second degrees are required to register in the Graduate School; to conform to the conditions outlined under "Admission," "Registration," and "Examinations" (pp. 42 and 58); to pursue an approved course of study for one academic year in residence, or, in the case of graduates of this University, for three years *in absentia;* and to pass satisfactory examinations upon all the studies of the approved course.

Each candidate for a second degree must present an acceptable thesis in the line of his major subject of study. The subject of this thesis must be announced to the Dean of the General Faculty not later than the first Monday in November of the academic year in which the course is to be completed. The completed thesis, upon regulation paper, must be presented, with the certified approval of the professor in charge, to the Council of Administration not later than June 1st.

The period of required study begins from the date of registration in the Graduate School.

DOCTOR'S DEGREE

The degree of Doctor of Philosophy may be conferred upon any member of the Graduate School of not less than three years' standing who shall have reached high attainments in scholarship, including a sufficient knowledge of the Latin, French, and German languages to serve the purposes of research in his principal specialty, who shall have shown marked ability in some line of literary or scientific investigation, and shall have presented a thesis giving clear indications of such scholarship and of such power of research. At least the first two, or the last one, of the three years of study must be in residence at the University, and the entire course of study must be in accordance with the regulations of the Graduate School.

The time and study required for a master's degree may be included in the three years required, but approval of a course of study for a doctor's degree must be upon the condition that the candidate is prepared through his baccalaureate work, or otherwise, to enter at once upon advanced studies in the line of his major subject, and that work on this major subject be continued through the three years.

The final examination of a candidate for the doctor's degree is conducted by a committee consisting of the head of the department under which the major subject has been pursued, as chairman, and of not less than two additional members of the General Faculty of the University, appointed for the purpose by the Council of Administration. This examination covers the subjects of the course approved for the degree, but is specially searching upon that on which the major work has been done. This examination occurs in the week preceding that upon which commencement day occurs.

Each candidate for a doctor's degree must announce to the Dean of the General Faculty a thesis subject not later

than the first Monday in November of the academic year at the close of which the award of the degree is expected. A fair copy of the thesis must be submitted, with a certified approval of the committee on examinations, to the Council of Administration not later than the first day of June. If the thesis is approved by the Council the candidate must have it printed and must deposit not less than one hundred copies with the librarian of the University.

FELLOWSHIPS

The Trustees of the University have established eight fellowships, each with a stipend of three hundred dollars, payable in ten monthly installments.

The rules governing appointments to these fellowships are as follows:

1. The purpose of these fellowships shall be to promote advanced scholarship and original research in the University.

2. The fellowships shall be open to graduates of this and similar institutions. Those who are to complete an under-graduate course previous to the academic year for which appointments are made shall be eligible, with others, as candidates.

3. Nominations to fellowships, accompanied by assignments to special departments of the University for instructional work, shall be made by the Council of Administration to the Trustees of the University, upon applications received by the President of the University each year, not later than the *twenty-fifth day of April*. These nominations shall be made at a meeting of the Council called for that purpose within the month of May. The appointments by the Trustees are made at their regular meeting in June, and shall take effect the first day of the following September. Vacancies may be filled by similar nominations and appointments at other times.

4. Nominations to fellowships shall be made upon the

grounds of worthiness of character, scholastic attainments, and promise of success in the principal line of study or research to which the candidate proposes to devote himself. Consideration shall also be given to the probable value or usefulness of the services of the candidate as an assistant in instruction, but this shall not be deemed the primary object of the appointment. Other things being equal, preference shall be given to those graduates of this University who have pursued a specialized course.*

5. Candidates must present, with their applications, full information concerning themselves and their qualifications for advanced study and research work, including any written or printed essays or results of investigation, and must name the subject in which they wish to do their major work.

6. Fellowships shall be good for one year. Appointments may not usually be renewed to the same persons, and in no case for more than one additional year; but an appointment as *honorary fellow,* without stipend, may be made as specified for paid fellowships in the case of anyone who has held a regular fellowship and has shown distinguished merit in his work.

7. Fellows shall be constituted members of the Graduate School, shall have all of the privileges and bear all of the responsibilities of such membership. Each regular fellow may be called upon to render service in instruction throughout the year in the department in which his major subject lies, equal to one hour daily of class instruction or to two hours daily of laboratory supervision. This service will receive such credit as the Council of Administration may determine in each case. Blank forms for application may be obtained by addressing the Registrar.

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*See pp. 67. 117. All members of the College of Engineering and of Agriculture, of the chemical and mathematical groups in the College of Science, of the College of Law, and of the Schools of Library Science and Music, are considered as pursuing specialized courses.

SCHOLARSHIPS

STATE

A law passed by the General Assembly of the State of Illinois at the session of 1895 provides that there may be awarded annually to each county of the state one state scholarship and one additional scholarship for each senatorial district in excess of one in any county. The holder thereof must be a resident of the senatorial district to which he is accredited, and is entitled to free tuition in other than the preparatory and professional schools of the University.

A competitive examination under the direction of the Superintendent of Public Instruction shall be held at the county courthouse in each county of the state upon the first Saturday of June in each and every year by the county superintendent of schools upon such branches of study as said Superintendent of Public Instruction and the President of said University may deem best.

Questions for such examinations shall be prepared and furnished by the President of the University to the Superintendent of Public Instruction, who shall attend to the printing and distribution thereof to the several county superintendents of schools prior to such examinations.

The law also provides that in case the scholarship in any county is not claimed by a resident of that county, the Superintendent of Public Instruction may fill the same by appointing some candidate first entitled to a vacancy in some other county.

Candidates to be eligible to a state scholarship must be at least sixteen years of age, and must have been residents of their respective counties for the year preceding the examination.

A student holding a state scholarship who shall make it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds to defray his expenses while in attendance, may, in the discretion of the President, be granted such a leave of ab-

sence, and may be allowed a period not exceeding six years from the commencement thereof for the completion of his course at said University.

The examinations will be held June 1, 1901, and June 7, 1902.

For particulars about them write to Hon. Alfred Bayliss, Superintendent of Public Instruction, Springfield, or to W. L. Pillsbury, Registrar, Urbana.

Any person, whether a candidate for a scholarship or not, may be examined for admission to the University at these state scholarship examinations.

SCHOLARSHIPS IN THE COLLEGE OF AGRICULTURE

The University will receive into the College of Agriculture annually one student from each county, outside of Cook County, and one from each of the first seven congressional districts of the state, upon the recommendation of the executive committee of the Illinois Farmers' Institute; matriculation and incidental fees are remitted to the holders of such scholarships; the benefits of the same are good for two years; and special students are eligible therefor: *Provided*, that the persons so recommended shall not have been previously in the University and shall comply with all the conditions of admission to the College of Agriculture.

Should there be more than one candidate from a county or congressional district, one of them shall receive the scholarship of his county or district and the other or others may be assigned to vacancies which may exist in other counties or congressional districts, as is customary with state scholarships.

MILITARY

Students who have gained 4 hours in class room military instruction and 4 in drill practice, are eligible for appointment as commissioned officers of the battalion. Those attaining this rank may be awarded special scholarships, good for one year, and equal in value to the University term fees for the same length of time.

PRIZES

THE HAZLETON PRIZE MEDAL

Capt. W. C. Hazleton provided in 1890 a medal, of beautiful and artistic design, which is to be awarded, at a competitive drill to be held near the close of the year, to the best drilled student. Each competitor must have been in attendance at the University at least sixteen weeks of the current college year; must not have had more than four unexcused absences from drill; and must present himself for competition in full uniform.

The award is made for excellence in these particulars:

1. Erectness of carriage, military appearance, and neatness.
2. Execution of the school of the soldier, without arms.
3. Manual of arms, with and without numbers.

The successful competitor will receive a certificate setting forth the facts, and may wear the medal until the 15th day of May following, when it will be returned for the next competition.

INTERSCHOLASTIC ORATORICAL CONTEST

A medal of the value of twenty dollars is offered annually by the University to the high schools of the state for the best oration delivered in a competitive contest between their representatives. This contest takes place in the spring at the time of the interscholastic athletic meet.

THE BRYAN PRIZE

In 1898 Mr. William Jennings Bryan gave to the University two hundred and fifty dollars. From the interest of this sum a prize of twenty-five dollars is biennially offered for the best essay on the science of government. The contest is open to all matriculated undergraduate students. The essays may not be less than three thousand, nor more than six thousand, words in length, and must be left at the President's office not later than the second Wednesday in

May. The prize will be offered for the first time in 1901. It is suggested that for this year the essays be upon some phase of modern colonial government.

BENEFICIARY AID

EDWARD SNYDER DEPARTMENT OF STUDENTS' AID

In 1899 Professor Edward Snyder, Professor of the German language and literature, *emeritus,* gave to the University the sum of $12,000, to be loaned to worthy students to enable them to finish their courses in the University.

This fund is, by action of the Trustees, available to junior, senior, and graduate students who need aid to remain and complete their work. The minimum loan made will be fifty dollars ($50), and the maximum will be one hundred and fifty dollars ($150) to a junior and two hundred dollars ($200) to a senior or graduate student. Notes of hand are taken for the amount of the loans, with 5 per cent. interest. The maximum time limit is three years for juniors, and two years from the ensuing thirtieth day of July for seniors and graduates.

Applications for loans will be passed upon by the Council of Administration and approved by the Finance Committee of the Board of Trustees of the University.

TO WHOM LOANS MAY BE MADE

Loans will be made to matriculated students only who have attained at least the rank of full juniors, who have been in residence at this University at least one year, who are at the time students in residence at this University, and who have declared their intention to graduate.

In recommending loans preference shall be given to those students who are farthest along in their University work and who have shown themselves most assiduous and successful in their studies, and who have shown habitual economy in life.

No distinction shall be made among students on account of sex or as to course of study.

A loan will not be recommended for any student who is believed to have been financially or morally delinquent in any respect.

Information given by applicants will be considered confidential on the part of the University authorities.

Applications for loans must be addressed to

THE PRESIDENT OF THE UNIVERSITY,
Urbana, or Champaign, Illinois.

CLASS OF 1895 LOAN FUND

This is a fund of $250.00, established by the class of 1895, to be loaned to needy and deserving students. According to the conditions of the gift, one-fifth of the amount is to be loaned annually, and is open to members of the freshman class only. No person may receive the benefit of the fund more than four years. The loan bears interest at the legal rate from the time the recipient leaves the University, and is due, one-half in five years, and one-half in six years, after matriculation. The management of the fund is in charge of the Council of Administration.

SOCIETIES AND CLUBS

LITERARY SOCIETIES

The ADELPHIC and PHILOMATHEAN societies for men, and the ALETHENAI for women, occupy large halls, which the members have appropriately furnished and decorated. Meetings are held Friday evenings throughout term time.

THE CHRISTIAN ASSOCIATIONS

The YOUNG MEN'S and the YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS are active and useful organizations, and have a large membership.

Subscriptions have been made by students and graduates, amounting to $23,000.00, toward a new building for these organizations. At present the associations occupy a commodious house, admirably located near the main University buildings.

CLUBS AUXILIARY TO COURSES OF STUDY

AGRICULTURAL CLUB

This club meets weekly. It is devoted to the discussion of topics of theoretical and practical interest to students of agriculture. All students connected with the University are eligible to membership.

ARCHITECTS' CLUB

This club meets once in two weeks for the consideration of current topics of architectural interest and subjects connected with the study of architectural history. All students pursuing architectural studies are eligible to membership. This club is a member of the Architectural League of America, and contributes to its annual exhibition in the principal cities of the United States.

CIVIL ENGINEERING CLUB

This club meets the second and fourth Saturday evenings of each month for the reading and discussion of papers relating to civil engineering. All students pursuing the civil engineering course may become members.

THE ENGLISH CLUB

The English Club is composed of members of the Faculty, and of students who have done especially good work in English. The work of the club is confined to the study of recent writers of fiction and of poetry. The membership is limited to thirty. Meetings are held on the second Monday of each month.

FRENCH CLUB

Le Cercle Français includes students who have had at least one year's work in French. The club meets once a month throughout the year. Its proceedings are conducted in French, the object being to supplement the work of the class room by the practical handling and understanding of the language.

LIBRARY CLUB

The instructors and students of the Library School have organized a Library Club. Any member of the staff of the

University library, of the Champaign public library, or of the Urbana public library, or any student who is registered for the Library School may become an active member. Trustees of the three libraries before mentioned are considered honorary members. Any others interested in library progress may become associate members.

Meetings are held once in three weeks during the college year. The first and last meetings of the year are of a social nature. The intervening meetings are devoted to topics of literary or technical library interest.

MECHANICAL AND ELECTRICAL ENGINEERING SOCIETY

This club meets on the second and fourth Friday evenings of each month. All students pursuing mechanical and electrical engineering studies are eligible to membership. Papers relating to subjects of interest to members are presented and discussed at each meeting.

MUSICAL CLUBS

These are described under the School of Music (p. 162.)

THE NATURAL HISTORY SOCIETY

This society is composed of instructors and students interested in the natural sciences. It conducts field excursions and exhibitions of objects of natural history, and provides occasional lectures on science subjects of general interest.

THE SCANDINAVIAN CLUB

The Scandinavian Club (Skandinaviske Samund) was organized in the spring of 1900 for the purpose of bringing together all men students having a knowledge of at least one of the Scandinavian languages. Meetings are held during the academic year, at which subjects connected with the northern countries, especially with their literatures, are discussed.

ZOÖLOGICAL CLUB

The University Zoölogical Club is composed of advanced students and instructors in the zoölogical and physiological departments, together with such other biological instructors

and advanced students as are interested in its subjects. Its sessions are devoted to the presentation and discussion of abstracts of recent biological literature and of the results of investigation by the members of the club. It meets weekly in Natural History Hall.

MILITARY SCIENCE.

The military instruction is under the charge of an officer of the United States Army. The course as a whole has special reference to the duties of officers of the line. A full supply of arms and ammunition is furnished by the War Department, including 400 cadet rifles and accoutrements and two field pieces of artillery.

Every male student able to peform military duty, and not excused for sufficient cause, is required to drill twice each week until he has gained credit for 4 semester hours. He is also required to study Drill Regulations for Infantry and to recite upon the same once a week until he gains credit for one semester hour. The practical instruction begins as soon as possible after he enters the University. A preparatory student carrying no freshman studies and not expecting to matriculate during the year is not permitted to drill. The standings in study and drill are placed on record, with other class credits; one semester of recitations and drill count two hours, and the three remaining semesters of drill three hours, and are requisite to graduation in every University course.

Appointments in the regiment are made on nomination by the officer in charge and confirmation by the Faculty.

The regiment (two battalions of three companies each) is composed mainly of the members of the freshman and sophomore classes. The non-commissioned officers are selected from the sophomore class, the lieutenants from the junior class, and the field officers and captains from the senior class.

A special military scholarship, good for one year, is open

to each student who attains the grade of a commissioned officer, the value of which is paid the holder at the close of the year.

An artillery detachment is organized mainly from the second year, or sophomore, class, which receives practical instruction twice each week during the college year.

Toward the close of the year a committee appointed by the Faculty examines candidates for nomination to the Governor of the state to receive commissions as brevet captains in the state militia. Candidates must be members of the senior class in full standing at the time of this examination; must have completed the course of military studies; must have served two semesters as captains or lieutenants, and must be approved by the Faculty as having good reputations as scholars, officers, and gentlemen.

The Trustees have prescribed a uniform of cadet gray, coat trimmed with black mohair braid, trousers with black cloth stripe, cut after the U. S. army pattern.

In order that all uniforms worn at this University may be, in quality, make, and finish in strict accordance with the specifications adopted by the Board of Trustees, all students enrolled in the military department will be required to obtain them from that firm only that may, for the time being, be under agreement and bond with the Trustees to furnish said uniforms at a stated price and of standard quality.

The University Military Band is composed of students, and every full term of service therein is counted as one term of drill.

PHYSICAL TRAINING

FOR MEN

The main object of the work of this department is to preserve the bodily health of the students by careful physical examinations, and rational prescriptions of exercises; by correcting physical deformities, and imperfect development; by teaching proper methods of living; and by encouraging proper intercollegiate sports.

Each student is required to undergo a physical examination so that a correct knowledge of his bodily condition may be obtained, and proper exercises prescribed. Regular classes are formed for drill on the various gymnasium appliances. Lectures are given upon personal hygiene.

All competitive athletic games are under the direct supervision of the professor of physical training, and his medical examination is required to show that membership on any team will tend to improve the physical condition, and not cause injury.

Two courses are offered to those who wish to prepare as instructors of physical training or coaches of athletic teams.

FOR WOMEN

The general health and development of all young women in this department are carefully looked after by the director of the Women's Gymnasium. Each one is given a physical examination, in order that her physical condition may be known, suitable exercise prescribed, and advice given.

Systematic class drill is given in Swedish, Delsarte, and American gymnastics, including free and light exercises; dumb-bells, clubs, wands, marching, fancy steps, Maypole games, basket-ball, military drill, and, if advisable, exercise on the various pieces of gymnasium apparatus. The gymnasium uniform consists of navy blue serge blouse and divided skirt, and black slippers.

Throughout the fall and spring outdoor games and exercises receive considerable attention. Lectures and talks on hygiene, physical training, etc., are given during the winter.

Each student comes under the personal observation of the director and is given exercises to meet her special needs.

Every woman student not physically disqualified must take the *prescribed* work, and may elect enough to make seven hours of credit.

The women's gymnasium occupies very attractive quarters in Natural History Hall, and is well equipped. The

pastime grounds near by, in use through the year, when the weather permits, have a sixteen-lap running track, eight tennis courts, two basket-ball fields, and space for hurdling, handball, and other suitable amusements.

The gymnasium is open for exercise, at certain hours, under suitable restrictions, to those who are not enrolled in classes.

HOSPITAL ASSOCIATION

The Hospital Association is an organization of students to provide a fund for hospital care in case of sickness. The members of the association pay a fee of fifty cents each semester and the fund thus raised is used to pay the hospital expenses of members who may need such care. The fund is under the control of a committee of the Faculty, and during the last three years the association has rendered valuable aid to a considerable number of members. Students are strongly advised to join the association.

EXPENSES

BOARD

The University does not furnish board, but there is a dining hall in the basement of University Hall, and under University supervision, where good meals may be obtained at reasonable rates. There are, also, a large number of suitable private places in Urbana and Champaign, within walking distance of the University, and easily accessible by electric railway, where students can obtain table board and rooms. There are several students' clubs at which the cost of meals is about two dollars and seventy-five cents a week.

The Business Manager and the Young Men's and Young Women's Christian Associations of the University will aid new students in procuring rooms and boarding places.

FEES

Technological, Scientific, Agricultural, and Literary Departments.

MATRICULATION FEE. Each student not holding a scholarship, upon satisfying the requirements for admission to the University, pays the matriculation fee of.............. $10 00

THE DIPLOMA FEE, payable before graduation, is.......... 5 00

THE INCIDENTAL FEE. All students, except those in the Graduate School, not taking studies which do not count for a second degree, and except those holding scholarships, pay, each semester, an incidental fee of.......... 12 00

TUITION FEE. Students "conditioned" on entrance requirements, "special" students (see p. 57), except special students holding scholarships, pay, each semester, a tuition fee of.... .... 7 50

LABORATORY FEES AND DEPOSITS. Each student working in laboratories, or in the drafting or engineering classes, is required to make a deposit varying from 50 cents to $10.00, to pay for chemicals and apparatus used, and for any breakages or damages.

Music Department

Students who are candidates for a degree in the music department pay the matriculation fee of	$10 00
Students in the music department taking studies in other departments of the University pay the "incidental" fee each semester	12 00
They also, if not matriculated, pay, each semester, the tuition fee of	7 50

Students not enrolled in other departments, and so not paying the "incidental" fee, pay special music fees as follows:

Piano, organ, or voice, two lessons a week, each semester	$32 50
Same, one lesson a week	19 50
Violin or other stringed instrument, two lessons a week, each semester	26 50
Same, one lesson a week	14 50
These students may enter classes in Physical Training (see p. 294 on paying, each semester	5 00

Students regularly enrolled and paying the "incidental" fee in other departments pay music fees as follows:

Piano, organ, or voice, two lessons a week, each semester	$25 00
Same, one lesson a week	15 00
Violin or other stringed instrument, two lessons a week	19 00
Same, one lesson a week	10 50
All students in harmony, counterpoint, fugue, etc., in classes not to exceed four, pay, each semester	9 00

No deduction is made on account of absence in any course, except in case of protracted illness.

Students can rent pianos for practice by applying to the head of the music department.

After September, 1901, *matriculated students, residents of Illinois,* will not be required to pay extra fees for instruction in music.

College of Law

Students of the College of Law, upon satisfying the requirements for admission, pay the matriculation fee of	$10 00
Tuition fee, each semester	25 00
Students conditioned on entrance requirements pay, each semester, an additional fee of	7 50

College of Medicine

Matriculation fee, paid each year	$ 5 00
General ticket, each term	55 00
Laboratory deposit (for material and breakages, balance returned)	10 00
Maternity hospital fee, payable once during senior year	10 00

School of Pharmacy

Tuition fee, each year	$75 00
Laboratory deposit, each year	5 00

Preparatory School

All pupils in the Preparatory School pay, each semester, an "incidental" fee of	12 00
Also a tuition fee of	7 50

ALL BILLS due the University *must be paid within ten days after the student enters classes.*

NECESSARY EXPENSES

The following are, for students attending at Urbana, estimated average annual expenses, exclusive of books, clothing, railroad fare, laboratory fees, if any, and small miscellaneous needs:

*Semester fees	$24 00	to	$24 00
Room rent for each student (two in room)	23 00	"	50 00
Table board in boarding houses and clubs	90 00	"	126 00
Fuel and Light	10 00	"	15 00
Washing	12 00	"	18 00
Total	$159 00	to	$233 00
Board and room in private houses, per week	4 00	"	6 00

CAUTION TO PARENTS—STUDENTS' FUNDS

The Business Manager will receive on deposit any funds parents may entrust to him to meet the expenses of their sons and daughters. No greater error can be committed than to send young people from home with large amounts of spending money, and without the authoritative care of some prudent friend. Half the dissipation in colleges springs from excessive allowances of money.

*Students of law and music, and pupils of the Preparatory School, must make needed changes in the amount given for "Semester fees."

PREPARATORY SCHOOL

INSTRUCTORS

EDWARD G. HOWE, B.S., Principal, Natural Science.
LILLIE ADELLE CLENDENIN, English.
CLARENCE W. ALVORD, A.B., History.
JAMES W. BUCHANAN, Geometry and Physics.
JOHN E. MILLER, A.B., Greek and Latin.
LEWIS A. ROBINSON, A.B., Algebra.

This school is for young men and women whose home schools do meet the entrance requirements of the University; or who, on account of advanced age or prolonged absence from school, are out of touch with the high school. It prepares its pupils for admission to the freshman class of the University. (See p. 42.)

ADMISSION

Candidates for admission must be at least fifteen years of age. Those of age may enter such classes as they are prepared for without examination. All under twenty-one years of age, except those coming from accredited schools (see p. 42), must pass a satisfactory examination in the following subjects:

1. ARITHMETIC.—A thorough knowledge is required of fundamental operations, simple and denominate numbers, the metric system of weights and measures, common and decimal fractions, practical measurements, percentage, ratio and proportion.

2. ENGLISH.—The examination is intended to test the student's vocabulary, and his knowledge of grammar.

3. GEOGRAPHY.—An accurate knowledge of physical configuration, political divisions, and important centers of population, is required.

4. HISTORY.—As a foundation in this subject, a knowledge of the early settlement of North America, and of the growth and development of the United States, is required. A knowledge of the nature and operation of the forces active in American life is desired, rather than the memorization of isolated dates and names.

ENTRANCE should be made at the opening of a semester, but applicants will be admitted at other times on presenting proofs that they are prepared to pursue the selected subjects. Examinations will be held in the rooms of the school, September 11 to 14, 1901, and January 31 and February 1, 1902. Examinations on these dates are free, but for special examinations at other times a fee of $3.00 may be charged.

EXAMINATIONS FOR ENTRANCE may be conducted in Illinois by county superintendents of schools in the same manner as for teachers' certificates, and their favorable reports will be accepted. First or second grade teachers' certificates from superintendents of Illinois will be taken for the same purpose.

ADMISSION FROM ACCREDITED SCHOOLS. On the written recommendation of their principals, students from the accredited schools of the University may be admitted without entrance examinations and credit will be allowed for all equivalent work already done. Blanks for such recommendations will be sent on application.

REGULATIONS

Reports regarding all students are sent at the close of each semester.

The calendar of the Preparatory School is the same as that of the University.

For information about fees and expenses, see page 296.

For special information with regard to the Preparatory School, address Principal of Preparatory School, Urbana, Illinois.

LIST OF STUDENTS

TECHNOLOGICAL, SCIENTIFIC, AGRICULTURAL, AND LITERARY DEPARTMENTS

GRADUATE SCHOOL

Alvord, Clarence Walworth, A.B., *(Williams Coll.)*, 1891, *Urbana*, History.

*Barclay, Thomas, B.S., 1891, *Aurora*, Smelting and Refining Processes of the United States; Geology of Ore Deposits.

Bigelow, Mary Constance, A.B., 1899, *Champaign*, Mathematics.

Black, Alice Mary, *Champaign*, Latin.

*Brown, Walter Burroughs, B.S., 1897, *Buffalo, N. Y.*, Chemistry.

Busey, Frank Lyman, M.E., 1898, *Urbana*, Mechanical Engineering.

*Clarke, Edwin Besançon, B.S., 1891, *Chicago*, Architecture.

*Clifford, Charles Luther, B.S., 1899, *Serena*, Electrical Engineering.

*Clinton, George Perkins, M.S., 1894, *Urbana*, Botany.

Coar, Henry Livingston, A.M., *(Harvard Univ.)*, 1894, *Urbana*, Mathematics.

Craig, Wallace, B.S., 1898, *Chicago*, Zoölogy.

Dewey, James Ansel, M.S., 1898, *Urbana*, Botany and Bacteriology,

*Dillon, William Wagner, A.B., 1898, *Sheldon*, History.

*DuBois, Alexander Dawes, B.S., 1899, *Springfield*, Electrical Engineering.

Eckles, Harry Edward, B.S., 1898, *New Castle, Pa.*, Civil Engineering.

Fay, John Carl, A.B., *(Berea Coll.)*, 1899, *Champaign*, Mathematics and Chemistry.

*Fischer, Louis Engelmann, B.S., 1898, *Mascoutah*, Municipal and Sanitary Engineering.

Fraser, Wilber John, B.S., 1893, *Champaign*, Agriculture.

Frazey, Alice Belle, A.B., 1898, *Urbana*, English.

Gagnier, Edward Duscharm, B.S., *(Mich. Agrl. Coll.)*, 1899, *Champaign*, Mechanical Engineering.

*Gerber, Winfred Dean, B.S., 1899, *Rockford*, Municipal and Sanitary Engineering.

Gordon, Joseph Hinckley, *Vandalia*, Economics.

*Grimes, George Lyman, B.S., 1897, *Ann Arbor, Mich.*, Mechanical Engineering.

Hall, Elizabeth T., A.B., 1900, *Urbana*, Latin.

*Herwig, John Newton, B.S., 1899, *Mason City*, Mechanical Engineering.

* In absentia, see p. 280.

*Hines, Edward George, B.S., 1900, *Urbana,* Architecture.
Hughes, Clarence Wilbert, A.B., 1900, *Urbana,* Economics.
*Ice, Meldora, B.S., 1897, *Gifford,* Architecture.
Kofoid, Mrs. Prudence Winter, A.B., *(Oberlin Coll.),* 1890, *Urbana,* History.
Latzer, Jennie Mary, B.S., 1900, *Highland,* Botany.
Laugman, John Oscar, B.S., 1900, *Helmar,* Botany.
*Lee, Julian Liechaski, B.S., 1900, *McComb, Miss.,* Mechanical Engineering.
McWilliams, Helen Louise, A.B., 1900, *Champaign,* French.
Marble, Harry Curtiss, B.S., 1896, *Champaign,* Electrical Engineering.
*Martin, John Madison, A.B., 1896, *Oak Park,* Pedagogy.
*Mayall, Edwin Lyman, B.S., 1900, *Peoria,* Mechanical Engineering.
Millar, Adam Vause, B.S., 1897, *Champaign,* Mathematics.
Miller, John Ezra, A.B., *(Michigan Univ.),* 1894, *Milledgeville,* Latin.
*Nevins, John, B.S., 1898, *Dallas, Tex.,* Architecture.
*Newell, Mason Harder, A.B., 1899, *Springfield,* Public Law and Administration.
Newton, Fred Earle, A.B., 1900, *Onarga,* Economics.
Oliver, Edd Charles, B.S., *(Purdue Univ.),* 1898, *Champaign.*
Otwell, Allen Meade, B.S., 1899, *Plainview,* Physics.
Palmer, William Gay, A.B., 1900, *Princeton,* Latin.
*Parr, John Louis, B.S., 1897, *Peoria,* Architecture.
*Plym, Francis John, B.S., 1897, *Lincoln, Neb.,* Architecture.
Ponzer, Ernest William, B.S., 1900, *Henry,* Mathematics.
Randall, Dwight T, B.S., 1897, *Urbana,* Mechanical Engineering.
*Richart, Frederick William, B.S., 1891, *Carterville,* Mechanical Engineering.
Robinson, Lewis Archibald, A.B., 1898, *White Post, Va.,* Pedagogy.
Rolfe, Martha Deette, B.S., 1900, *Champaign,* Physiography of Illinois.
*Ross, Luther Sherman, M.S., 1890, *DesMoines, Ia.,* Biology of Subterranean Crustaceans.
Salisbury, Herbert Spencer, B.S., *(Carthage Coll.),* 1899, *Burnside,* Geology.
Sammis, John Langley, M.S., 1899, *Champaign,* Chemistry.
Schulz, William Frederick, E.E., 1900, *Baltimore, Md.,* Electrical Engineering.
*Seely, Garrett Teller, B.S., 1899, *Oswego,* Civil Engineering.
Shamel, Archibald Dixon, B.S., 1898, *Urbana,* Agricultural Physics.
*Smith, George Russell, B.S., 1900, *Elkhart, Ind.,* Mechanical Engineering.
*Soverhill, Harvey Allen, B.S., 1900, *Beloit, Wis.,* Mechanical Engineering.
Spence, Franklin, B.S., 1895, *Urbana,* Architecture
*Strehlow, Oscar Emil, B.S., 1896, *Tuscaloosa, Ala.,* Civil Engineering.

*Sweney, Don, B.S., 1896, *Galesburg,* Mechanical Engineering.
*Swenson, Bernard Victor, B.S., 1893, *Madison, Wis.,* Mechanical Engineering.
*Tower, Willis Eugene, B.S., 1894, *Chana,* Physics.
*Unzicker, William Luther, A.B., 1898, *Hopedale,* Latin.
*Walter, Charles Albert, B.S., Phar. Chem., 1898, *Indianapolis, Ind.,* The Quantitative Estimation of the Active Medicinal Principles of Plants.
Waters, Willard Otis, A.B., *(Benzonia Coll.),* 1896, B.L.S., 1890, *Champaign,* German.
*Webster, William W., B.S., 1899, *Urbana,* Mechanical Engineering.
Wells, Elias Herbert, Ph.B., *(DePauw Univ.),* 1900, *Philo,* History.
Whitmeyer, Mark Hubert, B.S., 1899, *Danville,* Architecture.
*Williamson, Albert St. John, B.S., 1898, *Milwaukee, Wis.,* Mechanical Engineering.
Willis, Clifford, B.S., 1900, *Champaign,* Entomology.
*Wolcott, James Thompson, B.S., 1898, *Peoria,* Chemistry.
Woodworth, Howard Oakley, B.S., 1892, *Champaign,* Pedagogy.
*Zimmerman, Walter Howard, B.S., 1897, *Champaign,* Mechanical Engineering.

SENIORS

[In the list which follows, "L. and A." stands for College of Literature and Arts; "S." for the College of Science.]

Allen, Albert Miller,	*Oberlin, Ohio,*	Architecture.
Allen, Frank Gilbert,	*Rock Island,*	Mechanical Eng'g.
Alspach, Fred Albert,	*Mt. Pulaski,*	Civil Engineering.
Applegate, Alpheus Miller,	*Atlanta,*	Music.
Armitage, James Howard,	*Buckingham,*	Classical.
Bailey, Donald Herbert,	*Clinton,*	General, L. and A.
Baker, Horatio Weber,	*Champaign,*	Civil Engineering.
Baldwin, Aneta,	*Paris,*	General, L. and A.
Bardwell, Faith Leland,	*Champaign,*	English.
Barnett, Arthur,	*Hallsville,*	Prep. to Medicine.
Bell, Arthur Timothy,	*Azotus,*	Mathematics, L. and A.
Bell, Edgar Deforest,	*Urbana,*	Mechanical Eng'g.
Bird, Frederick Joel,	*Woodstock,*	Railway Eng'g.
Black, Alice Mary,	*Champaign,*	General, L. and A.
Black, Laura Louise,	*Champaign,*	General, L. and A.
Bonser, Frederick Gordon,	*Pana,*	Philosophy, S.
Boyd, Edward Parkman,	*Aledo,*	Architecture.
Bracken, Ellis Freeman,	*Greenview,*	Electrical Eng'g.
Brayton, Louis Frederick,	*Mt. Morris,*	Architectural Eng'g.
Bridgeman, Minnie Clarke,	*Keene, N. H.,*	Library.
Briggs, Claude Porter,	*Minier,*	General, L. and A.

Buchanan, James William,	*Charleston, Ind.,*	General Science.
Bundy, Ralph Parmer,	*Zionsville, Ind.,*	General, L. and A.
Burdick, Jay Horace,	*Elgin,*	Agriculture.
Calhoun, Henrietta Anne,	*Champaign,*	General Science.
Campbell, Ashton Ellsworth,	*Champaign,*	General, L. and A.
Carr, George Russell,	*Oak Park,*	Chemistry.
Carroll, Jessie Anna, A.B., *(Wilmington Coll.),* 1895,	*Wilmington, Ohio,*	Library.
Carter, Florence Emeline,	*Waukegan,*	Library.
Chapin, Edward Pierce,	*Champaign,*	General, L. and A.
Chapman, Charles Hiram,	*Vienna,*	General, L. and A.
Chester, Margaret Belle,	*Champaign,*	General, L. and A.
Chipps, Willis Cullem,	*Sullivan,*	Mechanical Eng'g.
Cole, Agnes Mary, B.S., *(Wheaton College),* 1893,	*Wheaton,*	Library.
Collins, Guy Richard,	*Urbana,*	Mechanical Eng'g.
Conard, Philip Arthur,	*Monticello,*	General, L. and A.
Cook, William Adelbert,	*Urbana,*	General, L. and A.
Crossland, George Marshall,	*Sheldon,*	Political Science.
Curfman, Lawrence Everett,	*Urbana,*	Math. and Physics.
Dadant, Louis Charles,	*Hamilton,*	Mechanical Eng'g.
Davis, Mary Belle,	*Urbana,*	General, L. and A.
Detrick, Nellie Elizabeth,	*Champaign,*	General, L. and A.
Dillon, Gertrude Sempill,	*Sheldon,*	General, L. and A.
Dillon, Roy Hodgson,	*Normal,*	Electrical Eng'g.
Draper, Charlotte Enid,	*Hakodate, Japan,*	General, L. and A.
Drury, Clair Fred,	*New Boston,*	Architecture.
East, Edward Murray,	*DuQuoin,*	Chemistry.
Emmett, Arthur Donaldson,	*Peoria,*	Chemistry.
Fellingham, Clark Hughes,	*Verona,*	Agriculture.
Fishback, Mason McCloud,	*Champaign,*	Political Science.
Franks, Charles Wilber,	*Brookville,*	General, L. and A.
Frazey, Nellie May,	*Urbana,*	General, L. and A.
Frost, Frank G,	*Gays,*	Mechanical Eng'g.
Fucik, Edward James,	*Chicago,*	Civil Engineering.
Garnett, Grace Ann,	*St. Marys,*	Latin and Mod. Lang.
Gayman, Myrtle,	*Champaign,*	General, L. and A.
Gleason, Henry Allan,	*Champaign,*	General Science.
Gordon, Joseph Hinckley,	*Vandalia,*	General, L. and A.
Graber, Howard Tyler,	*Peoria,*	Chemistry.
Green, Frances Myrtle,	*Urbana,*	General, L. and A.

Greene, Charles Thomas,	*Chicago,*	Classical.
Gridley, Harry Norman,	*Virginia,*	General, L. and A.
Griswold, Augustus Harold,	*Princeton,*	Electrical Eng'g.
Griswold, Lewis Edwin,	*Blue Mound,*	Agriculture.
Hammers, Edna Rose,	*Champaign,*	General, L. and A.
Hammers, Jesse,	*Champaign,*	General, L. and A.
Harman, John James,	*Milford,*	Civil Engineering.
Harrison, Dale Stuart,	*Sterling,*	Civil Engineering.
Hartrick, Guy Russell,	*Urbana,*	Chemistry.
Hartrick, Louis Eugene,	*Urbana,*	General Science.
Hays, Carl,	*Urbana,*	Civil Engineering.
Heath, Lawrence Seymour,	*Robinson,*	General, L. and A.
Henderson, Alexander,	*Chicago,*	General, L. and A.
Hicks, Byron Wallace,	*Warren,*	Civil Engineering.
Hinkle, Ida May,	*Champaign,*	English.
Hobble, Arthur Casson,	*Rushville,*	Electrical Eng'g.
Hopkins, Mabel,	*Indianapolis, Ind.,*	General, L. and A.
Hoppin, Charles Albert,	*Aurora,*	Mechanical Eng'g.
Horner, Harlan Hoyt,	*Cerro Gordo,*	General, L. and A.
Housel, Oscar Lloyd,	*Galesburg,*	Electrical Eng'g.
Howard, Clara Elizabeth,	*Bloomington,*	Library.
Hunter, Harry Edgar,	*Newton, Ia.,*	Architecture.
Hurlbert, Flora Dorothy,	Morrison,	Library.
Iddings, Daisy Deane,	*Atlanta,*	English.
Johnson, James Edward,	*Champaign,*	General, L. and A.
Johnson, John Peter,	*Des Moines, Ia.,*	Mech. Eng'g.
Jones, Albert Edward,	*Lena,*	General, L. and A.
Jones, Fannie Ella,	*Morris,*	Library.
Joy, Samuel Scott,	*Princeton,*	Architecture.
Kelley, Frances Emily,	*St. David,*	Latin and Mod. Lang.
Kemp, John Edward,	*Lake Forest,*	Civil Engineering.
Kirkpatrick, Harlow Barton,	*Anna,*	Civil Engineering.
Kittredge, Mary Harriet,	*Keene, N. H.,*	Library.
Kreikenbaum, Charles Otto Adolph,	*Chicago,*	Chemistry.
Layton, Katherine Alberta,	*Canton,*	Latin and Mod. Lang.
Lindley, Walter Charles,	*Neoga,*	General, L. and A.
Livingston, Stacia,	*Plainfield, Wis.,*	Library.
Lloyd, George Taylor, B.L., *(Wheaton Coll.),* 1900,	*Glen Ellyn,*	General Science.
Lodge, Paul Edmund,	*Monticello,*	General, L. and A.

Lotz, John Rudolph,	*Lockport,*	Civil Engineering.
Lowenthal, Fred,	*Chicago,*	General, L. and A.
Lyman, Frank Lewis,	*Farmingdale,*	Chemistry.
Lytle, Ernest Barnes,	*Decatur,*	Math. and Physics.
McCall, Eugene Adolphus,	*Vienna,*	General, L. and A.
McCormick, Roscoe,	*Garber,*	Prep. to Medicine.
McCune, Fred Leavitt,	*Chicago,*	Mechanical Eng'g.
McLane, John Wallace,	*Allerton, Ia.,*	Agriculture.
Manley, Katherine O'Donovan,	*Oshkosh,* Wis.,	Library.
Marsh, Albert Leroy,	*Champaign,*	Chemistry.
Martin, May Louise,	*Geneva, Ohio,*	Library.
Meier, William,	*Chicago,*	Civil Engineering.
Miles, Harriette,	*Elgin, Kan.,*	Library.
Miles, Rutherford Thomas,	*Champaign,*	Chemistry.
Miller, William Pitt,	*Champaign,*	Math. and Physics.
Mitchell, Annie,	*Bement,*	Latin and Mod. Lang.
Monjonnier, Timothy,	*Highland,*	Chemistry.
Moon, Amy Constance,	*Champaign,*	Library.
Myers, Jesse J,	*Green River,*	General Science.
Newcomb, Cyrus Forsyth,	*Champaign,*	General Science.
Nichols, Gunther,	*Lima, Ind.,*	General, L. and A.
Nilsson, Olaf Anton,	*Chicago,*	Architectural Eng'g.
Norton, Charles Waterman,	*Lockport,*	Classical.
Norton, Wilbur Perry,	*Alton,*	Electrical Eng'g.
O'Hair, Edna Elizabeth,	*Laurel, Ind.,*	Latin and Mod. Lang.
Omer, Lewis,	*Clayton,*	Math. and Physics.
Patrick, Frederick Phillips,	*Blue Mound,*	Architectural Eng'g.
Pletcher, Nuba Mitchel,	*Hoopeston,*	German and Rom. Lang.
Radcliffe, William Hickman,	*Springfield,*	Municipal Eng'g.
Ray, Walter Thornton,	*Eureka,*	Mechanical Eng'g.
Read, Nellie Lewis,	*Urbana,*	Political Science.
Redfield, George William,	*Galesburg,*	Electrical Eng'g.
Reynolds, Mabel,	*Jacksonport, Wis.,*	Library.
Richardson, Robert Earl,	*Shipman,*	General, L. and A.
Rolfe, Mary Annette,	*Champaign,*	General Science.
Schroeder, Curt August,	*Chicago,*	Chemistry.
Schulte, Mabel,	*Hopedale,*	General, L. and A.
Scott, Frank William,	*Centralia,*	English.
Scott, Margaret Annie,	*Champaign,*	General, L. and A.
Short, Walter Campbell,	*Fillmore,*	Math., L. and A.
Simmons, Aaron Trabue,	*Jerseyville,*	Architecture.

Slocumb, Edward Clyde,	*Champaign,*	Civil Engineering.
Sluss, Alfred Higgins,	*Tuscola,*	Mechanical Eng'g.
Smith, Bruce,	*Newman,*	General, L. and A.
Smith, George Carroll,	*Flora,*	General, L. and A.
Smith, Percy Almerin,	*Dixon,*	Math. and Physics.
Spellman, Lorinda Ballou,	*Granville, Ohio,*	Library.
Stanley, Otis Orion,	*Champaign,*	Prep. to Medicine.
Stevenson, Ralph Ewing,	*Bloomington,*	Civil Engineering.
Stewart, Miles Vincent,	*Toulon,*	Electrical Eng'g.
Strawn, John Harris,	*Albion,*	Classical.
Talbot, Carrie E,	*Plymouth,*	General, L. and A.
Tallyn, Louis Liston,	*Benson,*	Civil Engineering.
Theodorson, William Anton,	*Chicago,*	Civil Engineering.
Todd, Mary Estelle,	*Syracuse, N. Y.,*	Library.
Tull, Effie May,	*Farmer City,*	Classical.
Veirs, David Carroll,	*Urbana,*	Mechanical Eng'g.
Wahl, Henry,	*Champaign,*	Mechanical Eng'g.
Wait, Ernest Ludden,	*Urbana,*	Chemistry.
Warner, Harry Jackson,	*Prophetstown,*	Chemistry.
Welles, Winthrop Selden,	*Urbana,*	Philosophy, S.
Wetherbee, Charles Earl,	*Sterling,*	Architecture.
Williams, Ralph Joseph, A.B., *(Knox Coll.)*, 1897,	*Galesburg,*	Architecture.
Williams, Seymour,	*Monticello,*	General, L. and A.
Williams, Winifred Sue,	*Newman,*	General, L. and A.
Wing, Florence Sherwood,	*LaCrosse, Wis.,*	Library.
Wright, Sidney Walter,	*Atlanta,*	General, L. and A.

JUNIORS

Abbott, Ruth,	*Chicago,*	Library.
Ahrens, Anna Wilhelmina,	*Champaign,*	General, L. and A.
Allen, Edith Louise,	*Delavan,*	General Science.
Arnold, Lillian Belle,	*Bloomington,*	Library.
Bader, Will John,	*Quincy,*	Chemistry.
Baker, Adaline Maitland,	*Evanston,*	Library.
Barackman, Guy Bernard,	*Streator,*	Civil Engineering.
Barr, John,	*Urbana,*	Civil Engineering.
Barry, George Richard,	*Hillsboro,*	Civil Engineering.
Bassett, Herbert,	*Yorkville,*	General Science.
Bates, John Schuyler,	*Monmouth,*	Civil Engineering.
Beidler, Gertrude Louis,	*Champaign,*	Music.
Bennett, William Lee,	*Urbana,*	Classical.
*Berger, Donald Forbes,	*Anna,*	Agriculture.

* Deceased.

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Bidwell, Carlyle Dickerman,	*Chicago,*	Electrical Eng'g.
Boggess, Arthur Clinton,	*Catlin,*	Political Science.
Bopp, William George,	*Chicago,*	General, L. and A.
Borton, William Franklin,	*DeLand,*	Electrical Eng'g.
Breitstadt, John Henry,	*Quincy,*	Chemistry.
Brittin, Fred,	*Cantrall,*	Prep. to Medicine.
Brown, Lewis,	*Rockford,*	Electrical Eng'g.
Buckhouse, Mary Gertrude, B.S., *(Univ. of Mont.)*, 1900,	*Missoula, Mont.,*	Library.
Budington, Margaret, A.B., *(Vassar Coll.)*, 1900,	*Kingston, N. Y.,*	Library.
Buell, Fred Allen,	*Houston, Texas,*	Electrical Eng'g.
Buerkin, Emma,	*Quincy,*	General, L. and A.
Burham, Edna Sophia,	*Dixon,*	General Science.
Busey, Paul Graham,	*Urbana,*	General Science.
Cabeen, Fred Earl,	*Aledo,*	Agriculture.
Cadwell, Charles Nickerson,	*Cadwell,*	General, L. and A.
Campbell, Maude Permil,	*Champaign,*	Music.
Carriel, Fred Clifford,	*Jacksonville,*	Railway Eng'g.
Carter, William Curtis,	*Homer,*	Electrical Eng'g.
Chapin, Arlo,	*Champaign,*	General, L. and A.
Clark, Edith, A.B., 1899,	*Vandalia,*	Library.
Clark, Elwyn Lorenzo,	*Momence,*	Civil Engineering.
Clark Emma Alberta,	*Urbana,*	General, L. and A.
Clark, Thomas Aquilla,	*Urbana,*	Electrical Eng'g.
Clarke, Roger Newman,	*Edwardsville,*	Civil Engineering.
Clarke, Victor Hugo,	*Quincy,*	Mechanical Eng'g.
Clayton, Clark Mensch,	*Dixon,*	Municipal Eng'g.
Coen, Homer Clarence,	*Olney,*	General, L. and A.
Collis, Frank Bernard,	*Rockford,*	Electrical Eng'g.
Condit, Jay Sidney,	*Beardstown,*	Political Science.
Cottingham, William Stillman Chapin,	*Bloomington,*	Agriculture.
Cowley, Thomas Philip,	*Rockford,*	Mechanical Eng'g.
Cunningham, Ralph Edwin,	*Emporia, Kas.,*	Electrical Eng'g.
Danely, Mary Golden,	*Champaign,*	General, L. and A.
Dedman, Bryant,	*Sullivan,*	Mechanical Eng'g.
DeMotte, Roy James,	*Urbana,*	General Science.
DeMotte, Ruby Thorne,	*Urbana,*	General Science.
DeVelde, Harry Samuel,	*Chicago,*	General, L. and A.
Dill, Cora Elva,	*Mt. Pleasant, Ia.,*	Library.
Dobbins, Ethel Irene,	*Champaign,*	General, L. and A.

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Dole, Sarah,	*Mattoon,*	General, L. and A.
Donoghue, William Joseph,	*LaSalle,*	Chemistry.
Draper, Edwin Lyon,	*Urbana,*	Chemistry.
Drew, Fred Leon,	*Elgin,*	Mechanical Eng'g.
Duffy, Guy,	*Ottawa,*	General, L. and A.
Dunbar, Margaret, B.L., *(Monmouth College)*, 1896,	*Monmouth,*	Library.
Dunning, William Neil.	*Chicago,*	Civil Engineering.
English, Edward Cary, Jr.,	*Anna,*	Architecture.
Ensign, Alice Orra,	*Oak Park,*	Library, L. and A.
Etherton, William Alonzo.	*Carbondale,*	Architectural Eng'g.
Falkenberg, Fred Peter,	*Chicago,*	General, L. and A.
Farrin, James Moore,	*Cairo,*	Civil Engineering.
Farrin, William Otis,	*Cairo,*	Agriculture.
Forbes, Ernest Browning, B.S., 1897,	*Urbana,*	Agriculture.
Francis, Oscar Jefferson,	*Omaha, Neb.,*	Architecture.
Frazier, James William,	*Bushton,*	General Science.
Freese, John Andrew,	*Cadwell,*	General Science.
Fretz, Mrs. Jewell Camp,	*Tolono,*	Music.
Fullenwider, Thomas Irvin,	*Mechanicsburg,*	Civil Eng'g.
Fullerton, Hugh Regnier,	*Havana,*	General, L. and A.
Fulton, Robert Bruce,	*Hartford City, Ind.,*	Civil Eng'g.
Gage, Ralph Hawes,	*Chicago,*	Civil Engineering.
Gardiner, Charles Matthew,	*Champaign,*	Chemistry.
Geiger, Mabel Louise,	*Peoria,*	Library.
Gilkerson, Aletha,	*Urbana,*	General Science.
Gillespie, Belle Irene,	*Champaign,*	General, L. and A.
Goff, Mary Emma,	*Rantoul,*	General, L. and A.
Gold, Katharine Eaton,	*Chicago,*	Library, L. and A.
Goodale, Grace,	*Cincinnati, Ohio,*	Library.
Goss, Edna Lucy,	*Chicago,*	Library.
Graves, Marjorie,	*Dubuque, Ia.,*	Library.
Greenman, Edwin Gardner,	*Champaign,*	Mechanical Eng'g.
Hagedorn, Carl Frederick,	*Rock Island,*	Chemistry.
Hagey, Emma Joanna, A.B., *(Univ. of Neb.)*, 1898,	*Norfolk, Neb.,*	Library.
Hanna, Max Ross,	*Rushville,*	Electrical Eng'g.
Harman, Ira Chase,	*Milford,*	Prep. to Medicine.
Harris, Chester Ellis,	*Ogden,*	Prep. to Medicine.
Harris, Thomas Luther,	*Modesto,*	Political Science.
Harshman, Lucius Romaine,	*Sullivan,*	Classical.

Hayward, Mabel,	*Chicago,*	Library.
Higgins, Samuel Chase,	*El Paso, Texas,*	Mech. Eng'g.
Hinrichsen, Edward Eugene,	*Jacksonville,*	Electrical Eng'g.
Hodge, Mrs. Harriet Evans,	*Cincinnati, Ohio,*	Library.
Hostetter, Abram,	*Mt. Carroll,*	Prep. to Medicine.
Howe, Harriet Emma,	*Urbana,*	Library.
Hulce, Jennie Alice, Ph.M., *(Hillsdale Coll.)*, 1899,	*Hillsdale, Mich.,*	Library.
Husk, Frederick William,	*Shabbona,*	Civil Engineering.
Ingham, Leonard Ward,	*Clinton,*	General, L. and A.
Ingles, Ada May, B.S., *(Doane Coll.)*, 1895,	*Pleasant Hill, Neb.,*	Library.
James, Eula Elizabeth,	*Bentley,*	General, L. and A.
Jarman, Henry Phelps,	*Elmwood,*	Chemistry.
Johnson, Frederick Dawson,	*Alton,*	Railway Eng'g.
Johnson, Fred Vollentine,	*Champaign,*	Mechanical Eng'g.
Jones, Warren,	*Whitehall,*	General, L. and A.
Jutton, Lee,	*Champaign,*	Civil Engineering.
Kable, Charles Howard,	*Virden,*	Architecture.
Keator, Edward Oris,	*Polo,*	Civil Engineering.
Kerns, Harriet White,	*Champaign,*	General, L and A.
Kofoid, Reuben Nelson,	*Normal,*	Chemistry.
Lummis, Jessie Isa,	*Quincy,*	General, L. and A.
Lundgren, Carl Lee,	*Marengo,*	Civil Engineering.
Mabbett, Leora Esther, B.S., *(Univ. of Wis.)*, 1897,	*Edgerton, Wis.,*	Library.
McCarthy, Harry,	*Moline,*	Mechanical Eng'g.
McGinnis, Mary Ola,	*Dawson,*	General Science.
Malcolm, Charles Wesley,	*Roseville,*	Civil Engineering.
Mapes, John Victor,	*Paris,*	Chemistry.
Martin, Albert Carey,	*LaSalle,*	Architectural Eng'g.
Martin, Webb Wilde,	*Jerseyville,*	Chemistry.
Mather, Jennie Maria,	*Plainfield,*	Library.
Matthews, Robert Clayton,	*Joliet,*	Mechanical Eng'g.
Maxwell, Esther Anna,	*Champaign,*	Library.
Mitchell, Edwin Whitford,	*Round Grove,*	Agriculture.
Mount, Madison Hoge,	*Walnut Prairie,*	Mech. Eng'g.
Murray, Nina Jeannette, B. S., *(Lenox Coll.)*, 1891,	*Elmira,*	Library.
Myers, Wynne,	*Champaign,*	Library, L. and A.
Nabstedt, Frederick,	*Davenport, Ia.,*	Electrical Eng'g.

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Neff, Mary,	*Bloomington,*	Latin and Mod. Lang.
Norris, Carter,	*Farmer City,*	General, L. and A.
Oxer, George Carl,	*Macon,*	Electrical Eng'g.
Oyen, Albert Nelson,	*Chicago,*	Prep. to Medicine.
Parker, Lawrence Gilbert,	*Toluca,*	Civil Engineering.
Patton, Ada,	*Paxton,*	Library.
Peterson, Christian Peter Lauritz,	*Roskilde, Denmark,*	Civil Eng'g.
Pitts, Henrietta Betsy,	*Bloomington,*	General, L. and A.
Plant, Francis Benjamin,	*Texas City, Texas,*	Chemistry.
Poor, Edwin Lindsay,	*Streator,*	General Science.
Post, Hiram Franklin,	*Rock Rapids, Ia.,*	Mech. Eng'g.
Readhimer, Jerome Edward,	*Normal,*	Agriculture.
Reasoner, Clara Beck,	*Seymour,*	General, L. and A.
Reeves, George I,	*Wauponsee,*	General Science.
Richey, John Jefferson,	*Polo,*	Civil Engineering.
Rolfe, Susie Farley,	*Champaign,*	General Science.
Rose, Alice,	*Oak Park,*	Library.
Rose, L Vernon,	*Mattoon,*	General, L. and A.
Samson, Charles Leonard,	*Urbana,*	Mechanical Eng'g.
Samson, George Roy,	*Urbana,*	General, L. and A.
Sanders, Theodore Marcus,	*Little Rock, Ark.,*	Architecture.
Sawyer, Donald Hubbard,	*Oak Park,*	Municipal Eng'g.
Sawyer, George Loyal,	*Oak Park,*	Municipal Eng'g.
Schumacher, Tillie Joe,	*Champaign,*	General, L. and A.
Schwartz, Albert John,	*Dallas City,*	Civil Engineering.
Shimmin, Robert Philip,	*Rockford,*	Mechanical Eng'g.
Skinner, William Thomas,	*Loda,*	General Science.
Smith, Arthur Bourne, Ph.B., *(Wesleyan Univ.),* 1900,	*Lockwood, N. Y.,*	Library.
Smith, Ellen Garfield,	*Chicago,*	Library.
Snodgrass, John McBeath,	*Chicago,*	Mechanical Eng'g.
Spaulding, Ida Mary,	*Oshkosh, Wis.,*	Library.
Stedman, Jeanette,	*Champaign,*	Music.
Steele, Lavinia,	*Coon Rapids, Ia.,*	Library.
Steinmayer, Otto Christopher,	*LaSalle,*	Chemistry and Eng'g.
Storms, Mabel Moore,	*Fairport, N. Y.,*	Library.
Sussex, James Wolfe,	*Abingdon,*	Civil Engineering.
Swanberg, Floyd Ludwig,	*Danville,*	Mechanical Eng'g.
Taylor, Helen Mary,	*Bloomington,*	General, L. and A.
Thompson, Frank Linn,	*Champaign,*	General, L. and A.

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Thompson, McDonald,	*Isabel,*	Civil Engineering.
Thompson, Risty Melroy,	*Newman,*	Mechanical Eng'g.
Updike, Hector,	*Belleville,*	Mechanical Eng'g.
Vance, Edna Cecilia,	*Edwardsville,*	Library.
VanMeter, George William,	*Washington,*	Architecture.
Voss, Sophie Mary,	*Champaign,*	Music.
VonDerLippe, Ernest Carl Frederick,	*Chicago,*	Civil Eng'g.
Waller, Sarah Bell, B.S., *(Oxford Coll.),* 1897,	*River Forest,*	Library.
Waterbury, Leslie Abram,	*Polo,*	Civil Engineering.
Wendell, Francis George,	*New Holland,*	Civil Enginering.
Wesselhoeft, Charles Dietrich,	*Chicago,*	Electrical Eng'g.
Western, Irving Mark,	*Dundee,*	Political Science.
White, James Dunwell,	*Taylorville,*	General, L. and A.
White, William Elmer,	*Pana,*	Prep. to Medicine.
Whitehouse, Edith Ursula,	*Canton,*	Classical.
Whitson, Milton James,	*Davenport, Ia.*	Architecture.
Wilkins, Marion Isabel,	*Urbana,*	Library, L. and A.
Wilkinson, Nathan,	*Emporia, Kas.,*	Electrical Eng'g.
Williams, Elrick,	*Illiopolis,*	Chemistry.
Wilson, Thomas,	*Caledonia,*	Electrical Eng'g.
Wolff, Solomon,	*El Paso, Texas,*	Electrical Eng'g.
Wolleson, Herbert Henry,	*Belleville,*	Architectural Eng'g.

SOPHOMORES

13

Allen, Mae Louise,	*Champaign,*	General, L. and A.
Anderson, Mary,	*Macon,*	General, L. and A.
Apple, Charles,	*Palestine,*	Civil Engineering.
Atwood, James Thomas,	*Rockford,*	Mechanical Eng'g.
Baker, Howard Newell,	*Champaign,*	Prep. to Medicine.
Barker, Perry,	*Rochelle,*	Chemistry.
Barnsback, Seddie Elizabeth,	*Edwardsville,*	Library, L. and A.
Barrett, James Theophilus,	*Butler,*	General Science.
Baumberger, Harry Nicholas,	*Greenville,*	Civil Engineering.
Bean, Clarence Herbert,	*Rock Falls,*	Chem. and Eng'g.
Bear, Ernest,	*Bearsdale,*	Civil Engineering.
Benefiel, Wenona Epps,	*Mattoon,*	Math. and Physics.
Bennett, John Lewis,	*Mattoon,*	General, L. and A.
Bennett, Stella,	*Irene,*	Library, L. and A.
Bigelow, Charles Albert,	*Champaign,*	Mechanical Eng'g.
Black, George W,	*Oakland,*	General, L. and A.
Blackburn, Joe Romine,	*Danville,*	Mechanical Eng'g.

Blanchard, Nathaniel Pearce,	*Urbana,*	Architecture.
Block, Edgar William,	*Sidney,*	Civil Engineering.
Bond, Austin,	*Carmel, Ind.,*	Architecture.
Bonnell, Everett Shannon,	*LaMoille,*	*Electrical Eng'g.*
Booker, Helen Ethel,	*Champaign,*	General, L. and A.
Boon, Harry Larry,	*Armstrong,*	General, L. and A.
Borton, Lucina Jane,	*Urbana,*	General L. and A.
Bradshaw, Jessie Isabelle,	*Chicago,*	General, L. and A.
Briggs, Edwin Cressy,	*Rockford,*	Mechanical Eng'g.
Brittin, Edward Bayliss,	*Cantrall,*	Prep. to Medicine.
Brookings, Louise Roberts,	*DuQuoin,*	General, L. and A.
Brundage, Martin Denman,	*Malta,*	General L. and A.
Bryant, Arthur Warren,	*Princeton,*	Agriculture.
Buell, Edward Thomas,	*Chicago,*	Electrical Eng'g.
Buerkin, Marguerite,	*Quincy,*	General, L. and A.
Burkhalter, Wayne Edison,	*Peoria,*	Civil Engineering.
Burnett, Roland,	*N. Harvey,*	Mechanical Eng'g.
Burrill, Lettie Evelyn,	*Kansas City, Mo.,*	Gen., L. and A.
Burrill, Mildred Ann,	*Urbana,*	General, L. and A.
Cabanis, Rena Clark,	*Kinmundy,*	Civil Engineering.
Campbell, Daisy Irene,	*Champaign,*	General, L. and A.
Carr, Earl Henry,	*DuQuoin,*	General, L. and A.
Carson, Francis Thomas,	*Urbana,*	General Science.
Carter, Opal Gertrude,	*Champaign,*	General Science.
Chacey, Anna Olive,	*Hillsboro,*	General, L. and A.
Chisholm, Estella Forth,	*Champaign,*	General, L. and A.
Clark, Matilda Lenna,	*Elvaston,*	General Science.
Clinton, Anna Lucile,	*Polo,*	Library, L. and A.
Cobb, Scott Ewing,	*Galesburg,*	Mechanical Eng'g.
Cook, James Fitchie,	*Dundee,*	Mechanical Eng'g.
Dake, LeRoy Gilbert,	*Harvard,*	General, L. and A.
Dalbey, Dwight Stout,	*Taylorville,*	Agriculture.
Dallenbach, J C,	*Champaign,*	General Science.
Danahey, Thomas Francis,	*Quincy,*	General, L. and A.
Darlington, Genevieve,	*LaGrange,*	Library, L. and A.
Dawson, Charles Hubbard,	*Bement,*	General Science.
Dayton, Laura,	*Paris,*	Music.
Delzell, Mayo Alexander,	*Robinson,*	Mechanical Eng'g.
Dolkart, Leo,	*Chicago,*	Electrical Eng'g.
Dorsey, Clarence Benson,	*Moro,*	Agriculture.
Drury, Ralph Southward,	*New Boston,*	Mechanical Eng'g.
Duffy, James Franklin, Jr.,	*Chicago,*	Electrical Eng'g.

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Dunshee, Vernon Amasa,	*Mt. Carroll,*	Prep. to Medicine.
Eidmann, Gustav Herman,	*Mascoutah,*	Agriculture.
Elder, Bessie Marie,	*Topeka, Kas.,*	Music.
Fisher, Clara Edna,	*Champaign,*	General, L. and A.
Fiske, Clarence Wilson,	*Sterling,*	Mechanical Eng'g.
Fletcher, Carl Joshua,	*Galesburg,*	Electrical Eng'g.
Folckemer, Harry Rox,	*Camp Point,*	Prep. to Medicine.
Forbes, Ethel Clara Schumann,	*Urbana,*	General, L. and A.
Forbes, Marjorie Douglas,	*Urbana,*	General, L. and A.
French, Maurice Deen,	*Danville,*	. Electrical Eng'g.
Fursman, William Hiram,	*El Paso,*	Civil Engineering.
Gale, Eli Pike,	*Aurora,*	Chemistry.
Garnett, Elmer Logan,	*St. Marys,*	General, L. and A.
Garver, Willia Kathryn,	*Bloomington,*	Library, L. and A.
Gibbs, Elizabeth Hayward,	*Urbana,*	Music.
Gilkerson, Frances Emeline,	*Urbana,*	General, L. and A.
Gillespie, Louella Ida,	*Champaign,*	Music.
Goodman, Herbert Marcus,	*Chicago,*	Prep. to Medicine.
Green, Charles Henry,	*Sterling,*	Mechanical Eng'g.
Habermeyer, George Conrad,	*Aurora,*	Civil Engineering.
Haight, Samuel John, Jr.,	*Mendota,*	Agriculture.
Hall, Augusta Maude,	*Urbana,*	General, L. and A.
*Harrington, Theodore G,	*Delavan,*	Prep. to Medicine.
Harris, Thaddeus Sidney,	*Modesto,*	General Science.
Hatch, Walter Ray,	*Goshen, Ind.,*	Civil Engineering.
Hayhurst, Emery Roe,	*Maywood,*	Prep. to Medicine.
Heath, Lillian,	*Whiteheath,*	General, L. and A.
Henderson, Mary,	*Cedar Rapids, Ia.,*	Lib., L. and A.
Herman, Edward Elmer,	*Waukegan,*	Electrical Eng'g.
Herrick, Lyle George,	*Farmer City,*	General, L. and A.
Higgins, Charles Huntington,	*Quincy,*	Chemistry.
Higgins, Francis Whitson,	*Chicago Heights,*	Chemistry.
Holcomb, Timothy Osmond, Jr.,	*Milmine,*	General Science.
Holderman, Marjorie Campbell,	*Urbana,*	General, L. and A.
Holmes, Alfred Edwin,	*Bradford,*	Civil Engineering.
Howell, Carrie Barnes,	*Urbana,*	Agriculture.
Hunter, Charles Phelps,	*Newton, Ia.,*	General, L. and A.
Huntoon, John Samuels,	*Moline,*	Civil Engineering.
Inks, Frank Emerson,	*Ohio,*	Prep. to Medicine.
Ireland, Washington Parker,	*Chicago,*	Civil Engineering.
Jacobs, Manuel Joseph,	*Chicago,*	Civil Engineering.

*Deceased.

James, Harry Demming,	*Amboy,*	General, L. and A.
Johnson, Albert Myron,	*Kishwaukee,*	Electrical Eng'g.
Johnson, William Chance,	*Champaign,*	General, L. and A.
Jones, J Claude,	*Chicago,*	General Science.
Jones, Lucile,	*Chicago,*	Library, L. and A.
Kaeser, William George,	*Highland,*	General, L. and A.
Kelly, Arthur Rolland,	*Waterloo, Ia.,*	Architecture.
Kelso, Curtis Elmer,	*Thomasboro,*	Chemistry.
Kettenring, Henry Sylvester,	*Pekin,*	General, L. and A.
Ketzle, Henry Benjamin,	*Reynolds,*	Mechanical Eng'g.
Kimmel, Howard Elihu,	*DuQuoin,*	General, L. and A.
King, Louis Blume,	*Champaign,*	General, L. and A.
Kuss, Robert Hayden,	*Peoria,*	Mechanical Eng'g.
Lake, Mrs. Effie Estelle,	*Champaign,*	Music.
Landon, Truman Harry,	*Jerseyville,*	Civil Engineering.
Langworthy, Carrie Valeria,	*Dubuque, Ia.,*	Library, L. and A.
Larrison, George Kirkpatrick,	*Havana,*	Civil Engineering.
Lefler, Emma Grace,	*Pontiac,*	Library, L. and A.
Lehmpuhl, Hermann Frank,	*Chicago,*	Electrical Eng'g.
LeSourd, Alfred Curtis,	*Topeka,*	Civil Engineering.
Lindgren, Justa Morris,	*Moline,*	Chemistry.
Lloyd, Robert Clinton,	*Canton,*	Agriculture.
Love, Leila Sara,	*Danville,*	General, L. and A.
Luther, Otto Lawrence,	*Quincy,*	Classical.
McCracken, George Milas,	*Pana,*	Architecture.
McCulloch, Albert Barnes,	*St. Louis, Mo.,*	Architecture.
McFarland, James Albert,	*Mendota,*	Chemistry.
McIntosh, Katheryn Eleanor Annie,	*Champaign,*	General, L. and A.
McRobie, Isabel,	*Chicago,*	Classical.
Mann, Alice Calhoun,	*Danville,*	General, L. and A.
Manspeaker, Pearle,	*Champaign,*	General, L. and A.
Marsh, George Requa,	*Marseilles,*	General, L. and A.
Mayer, Elmer Benjamin,	*Mt. Pulaski,*	General, L. and A.
Metzger, Louis Charles Frederick,	*Belleville,*	Civil Engineering.
Mills, Ralph Garfield,	*Decatur,*	General Science.
Miskimen, William Anderson,	*Hoopeston,*	Mechanical Eng'g.
Monier, Sara,	*Champaign,*	Library, L. and A.
Moore, Claude Bliss,	*Wilmington,*	Mechanical Eng'g.
Morrow, Nelson C,	*Rockford,*	Prep. to Medicine.
Munsen, Andrew,	*Henry,*	Civil Engineering.
Noble, Thomas,	*Urbana,*	Agriculture.

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Odell, Rena May,	*Morrison,*	Classical.
Park, William Mansfield,	*Urbana,*	Civil Engineering.
Parker, Roy Sheldon,	*Toluca,*	Political Science.
Piper, Ellsworth Elmer,	*Chicago,*	Electrical Eng'g.
Platt, Alfred,	*Decatur,*	Prep. to Medicine.
Prater, Banus Hutson,	*Decatur,*	Civil Engineering.
Price, Hugh Mitchel,	*Urbana,*	Civil Engineering.
Provine, Loring Harvey,	*Macomb,*	Architecture.
Quayle, Henry Joseph,	*Bondville,*	General Science.
Ramsey, William Everton,	*Chicago,*	Architectural Eng'g.
Read, Edgar Newton,	*Urbana,*	General Science.
Rhoads, Albert Carlton,	*Champaign,*	Mechanical Eng'g.
Rightor, Fred Elmer,	*Rockford,*	Civil Engineering.
Riley, Anna Bethiar,	*Urbana,*	Library, L. and A.
Robison, Lyle,	*Kewanee,*	Political Science.
Rose, Fred Wayland,	*Mazon,*	Electrical Eng'g.
Rutt, Roy Weaver,	*Sterling,*	Mechanical Eng'g.
Schacht, John Henry,	*Moline,*	Architecture.
Schmidt, Gustavus Adolphus,	*Chicago,*	Prep. to Medicine.
Schutt, Alfred George,	*Belleville,*	Electrical Eng'g.
Scudder, Harry Disbro,	*Chicago,*	Agriculture.
Seymour, Budd Willard,	*Dwight,*	Civil Engineering.
Shawhan, William Warren,	*Champaign,*	Civil Engineering.
Sheldon, Maude Lillian,	*Sharpsburg,*	General Science.
Sheldon, Victor Lorenzo,	*Taylorville,*	Mechanical Eng'g.
Shoemaker, John Earl,	*Charleston,*	General, L. and A.
Siler, Roderick William,	*Chicago,*	Civil Engineering.
Skinner, Elgie Ray,	*Champaign,*	Mechanical Eng'g.
Smith, Roy,	*Colusa,*	General, L. and A.
Sparks, Annie Elnora,	*Urbana,*	Classical.
Stansbury, Alta Louise,	*Cedar Rapids, Ia.,*	Library, L. and A.
Steinwedell, Carl,	*Quincy,*	Chemistry.
Stevens, Lucie Alzina,	*Marengo,*	General, L. and A.
Storey, Ellsworth Prime,	*Chicago,*	Architecture.
Street, Marietta Louise,	*Dixon,*	Library, L. and A.
Stuebe, Leonard Fred,	*Danville,*	Architecture.
Stutsman, Ada Helen,	*Quincy,*	General, L. and A.
Swezey, Anne Davies.	*Hinsdale,*	Library, L. and A.
Tegen, Robert Frederick,	*Manitowoc, Wis.,*	Architecture.
Tuthill, Lewis Butler,	*Anna,*	General, L. and A.
Varnes, Albert Grafton,	*Farmington,*	Civil Engineering.

Webber, Pearl,	*Urbana,*	General, L. and A.
Wells, Fred Mason,	*Moline,*	Agriculture.
Wernham, George Titus,	*Marengo,*	Prep. to Medicine.
Westhold, Hannah Amanda,	*Marblehead,*	General, L. and A.
Whitham, Paul Page,	*Olympia, Wash.,*	Mechanical Eng.
Whitsitt, Hammond William,	*Preëmption*	Architecture.
Williams, Simon,	*Illiopolis,*	General, L. and A.
Wilson, Joseph Wade,	*Moline,*	Architecture.
Woodmansee, Ralph Collum,	*Champaign,*	Library, L. and A.
Zangerle, Arthur Norman,	*Chicago,*	Chemistry.
Zartman, Lester William,	*Grant Park,*	General, L. and A.

FRESHMEN

Abell, Ralph Elliott,	*Elgin,*	Architecture.
Ahlswede, Arthur Charles,	*Chicago,*	Agriculture.
Allen, Arthur William,	*Peoria,*	Architectural Eng'g.
Allen, Paschal,	*Delavan,*	Agriculture.
Allin, Eugenia,	*Bloomington,*	Library, L. and A.
Anderson, John Edward,	*Paxton,*	General, L. and A.
Applegate, Archie Bleigh,	*Atlanta,*	Agriculture.
Armeling, Carl Elmer,	*Mason City,*	Classical.
Armstrong, Gertrude Maud,	*Champaign,*	General, L. and A.
Baer, David Arthur,	*Alexis,*	Electrical Eng'g.
Bailey, Walter Thomas,	*Kewanee,*	Architecture.
Baker, Imo Estella,	*Champaign,*	General, L. and A.
Baker, Nettie S,	*Morrison,*	Library, L. and A.
Ballard, William Salisbury,	*Batavia,*	General Science.
Ballinger, Ralph Adams,	*Keokuk, Ia.,*	Mechanical Eng'g.
Ballou, Frederick Herbert,	*Wheaton,*	Electrical Eng'g.
Barker, Rollin Sabin,	*Mazon,*	Civil Engineering.
Barnhart, Charles Anthony,	*Mansfield,*	Math. and Physics.
Barnhart, Jesse Melangthon,	*Mansfield,*	Chemistry.
Barry, Harold Bradford,	*Hillsboro,*	Civil Engineering.
Barter, Harold Hendryx,	*Chicago,*	Mechanical Eng'g.
Bates, Patrick Francis,	*Tolono,*	Civil Engineering
Bauer, Ralph Stanley,	*Stonington,*	Classical.
Becker, Cornelius Adolph,	*Chicago,*	Electrical eng'g.
Benson, Arthur Chapman,	*Cedar Bluff,*	General, L. and A.
Berger, John Milton,	*Dolton Station,*	Prep. to Medicine.
Best, John Henry,	*Quincy,*	Civil Engineering.
Bjork, David Theodore,	*Chicago,*	Civil Engineering.
Blackburn, Roy Jabez,	*Decatur,*	Electrical Eng'g.
Bond, Annie Louise,	*Mt. Vernon,*	General, L. and A.

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Bond, Bertha Julia,	*Charleston,*	General L. and A.
Bosworth, Earle Melas,	*Vincennes, Ind.,*	Architecture.
Bourne, Lemuel Harold,	*Amboy,*	General, L. and A.
Brayton, Bruce Leroy,	*Mt. Morris,*	Political Science.
Briggle, Charles Guy,	*Rushville,*	General, L. and A.
Brink, Sherman Gillespie,	*Edwardsville,*	General, L. and A.
Brown, Arthur Charles,	*Champaign,*	Mechanical Eng'g.
Brown, Seymour Dewey,	*Chicago,*	Civil Engineering.
Burford, Cary Clive,	*Hoopeston,*	General, L. and A.
Burgess, Fred Henry,	*Monticello,*	Civil Engineering.
Burgess, Ralph Royal,	*Monticello,*	Architecture.
Burr, Elizabeth Hal,	*Champaign,*	Library, L. and A.
Bushnell, George Stearns,	*Chicago,*	Mechanical Eng'g.
Campbell, Muriel Florence,	*Champaign,*	General, L. and A.
Carter, William Douglas,	*Quincy,*	Electrical Eng'g.
Cattron, John William,	*Fairview,*	Agriculture.
Cavanor, Frank Tracy,	*Chicago,*	Prep. to Medicine.
Cayou, Francis Mitchell,	*Decatur, Neb.,*	Electrical Eng'g.
Chapin, George,	*Champaign,*	General, L. and A.
Chapin, Lucy,	*Champaign,*	General, L. and A.
Chapman, Daniel Ward,	*Vienna,*	General, L. and A.
Charles, Paul Lamont,	*Woodstock,*	Electrical Eng'g.
Chester, Anna,	*Champaign,*	General, L. and A.
Chester, Virginia,	*Champaign,*	General, L. and A.
Churchill, James Forrest,	*Keithsburg,*	Civil Engineering.
Clark, Alice Hartzel,	*Urbana,*	Architecture.
Clark, George Arthur,	*Peoria,*	Civil Engineering.
Connelly, William J,	*Chicago,*	Classical.
Coombe, Harry N,	*Arcola,*	Agriculture.
Coons, Clarence Wilbur,	*Bloomington,*	Agriculture.
Corbin, Henry,	*Carbon Cliff,*	Electrical Eng'g.
Cox, Claude Herbert,	*Vandalia,*	Agriculture.
Cox, Manford E,	*Robinson,*	General, L. and A.
Coyle, John Frank,	*Penfield,*	General Science.
Crews, Halbert Ottis,	*Mt. Vernon,*	General, L. and A.
Crosthwait, George Ashley,	*Urbana,*	General Science.
Crowder, Lenora Ellen,	*Havana,*	General, L. and A.
Crum, George Everett,	*Selma,*	Civil Engineering.
Crumbaugh, Bertha Viola,	*LeRoy,*	General, L. and A.
Curtis, Paul Steele,	*Arcola,*	Chemistry.
Custer, Bertha Mae,	*Streator,*	General, L. and A.
Dadant, Henry Camille,	*Hamilton,*	Civil Engineering.

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Danely, Alfred, Jr.,	*Champaign,*	General, L. and A.
Daniels, Coralie Alfredetta,	*Savoy,*	Household Science.
Darlington, Herbert Spencer,	*LaGrange,*	Electrical Eng'g.
Dart, Whitman,	*Rock Island,*	Architecture.
Davis, Cleon Leslie,	*Mt. Zion,*	Civil Engineering.
Davis, Forrest Spurgeon,	*Urbana,*	General, L. and A.
Davis, John Wolfersperger,	*Sterling,*	Electrical Eng'g.
Deutschmann, Fred John, Jr.,	*Belleville,*	Civil Engineering.
Dickerson, George Hamm,	*Mahomet,*	Mechanical Eng'g.
Diefenbach, Arthur Garfield,	*Blue Island,*	Electrical Eng'g.
Diener, Walter Gustav,	*Chicago,*	Electrical Eng'g.
Dieterle, Edward August,	*Chicago,*	Mechanical Eng'g.
Dirks, Henry Bernhard,	*Chicago,*	Mechanical Eng'g.
Doud, Willard Orrin,	*Chicago,*	Mechanical Eng'g.
Doyle, Joseph Lemen,	*Champaign,*	General, L. and A.
Durland, Clyde Earl,	*Flora,*	Civil Engineering.
Ealey, Homer,	*Urbana,*	Civil Engineering.
Ealey, Minnie,	*Urbana,*	Music.
Eckstorm, Harold,	*Chicago,*	Mechanical Eng'g.
Eide, Torris,	*Lee,*	Civil Engineering.
Emmerson, Raymond Jesse,	*Mt. Vernon,*	General, L. and A.
Engstrom, Roy Victor,	*Peoria,*	Civil Engineering.
Ericson, Lambert Theodore,	*Moline,*	Mechanical Eng'g.
Ernest, Roy Alfred,	*Sycamore,*	Electrical Eng'g.
Errett, Albert Widney, Jr.,	*Kewanee,*	Mechanical Eng'g.
Evans, Kenneth Neill,	*Taylorville,*	General, L. and A.
Ewing, Charles Edwin,	*Decatur,*	Civil Engineering.
Ferguson, Charles L,	*Mendota,*	Natural Science.
Fisher, George,	*Champaign,*	Mechanical Eng'g.
Flagg, Samuel Barry,	*Alton,*	Mechanical Eng'g.
Fleming, Clarence E,	*Delavan,*	General, L. and A.
Floto, Ernest Charles,	*Dixon,*	Civil Engineering.
Fogg, Alma Jessie,	*Wenona,*	General Science.
Ford, Ernest Jason,	*Prairie Center,*	Prep. to Medicine.
Frankenberg, Pearle,	*Urbana,*	Library, L. and A
French, Burton,	*Chicago,*	Electrical Eng'g.
Gaines, Forest,	*Champaign,*	General Science.
Galeener, John Halbert,	*Vienna,*	General, L. and A.
Garden, Henry Rhiel,	*Joliet,*	Civil Engineering.
Gardiner, Cecil Merritt,	*Champaign,*	Prep. to Medicine.
Gaston, David Newton,	*Chicago,*	Mechanical Eng'g.
Gengler, Wilbert,	*Sandwich,*	Chemistry and Eng'g.

Gibbs, Charles Henry,	*Princeton,*	Mechanical Eng'g.
Gibbs, Charlotte Mitchell,	*Urbana,*	General, L. and A.
Gillespie, Charles Millard,	*Paris,*	Agriculture.
Gillham, Philip Dakin,	*Princeton,*	Mechanical Eng'g.
Gilmour, Joseph Coleman,	*Biggsville,*	Civil Engineering.
Ginzel, Carl Louis,	*Trenton,*	Electrical Eng'g.
Glassco, Paul Bond,	*Charleston,*	Architectural Eng'g.
Goodspeed, Wilbur Fisk,	*Tuscola,*	Agriculture.
Gorham, Josiah,	*Champaign,*	Chemistry.
Gossman, Frank Louis,	*Cairo,*	General, L. and A.
Gray, Bartlett Stephen,	*Jacksonville,*	General, L. and A.
Green, LeRoy M.	*Rockford,*	General, L. and A.
Greenwood, Harris Paul,	*Edwardsville,*	Electrical Eng'g.
Hadden, Samuel Cornelius,	*Mazon,*	Civil Engineering.
Hadfield, Frank Stanley,	*Chicago,*	Mechanical Eng'g.
Hampton, Ethel Alleyene,	*Macomb,*	General Science.
Hardy, Guy Byron,	*Abingdon,*	General, L. and A.
Harney, Charles Jones,	*Henry,*	Civil Engineering.
Harpole, Byron,	*Champaign,*	Electrical Eng'g.
Hawes, Charlotte Emma,	*Decatur,*	Library, L. and A.
Hawkins, Anna deZeng,	*Arcola,*	General, L. and A.
Hawthorne, Elizabeth Lena,	*LaPlace,*	Mathematics.
Hecox, Walter Coffeen,	*Champaign,*	Civil Engineering.
Hedges, Ida Belle,	*Urbana,*	General, L. and A.
Heinzelman, Chester Arthur,	*Belleville,*	Electrical Eng'g.
Henry, Smith Tompkins, Jr.,	*Bushnell,*	Civil Engineering.
Higinbotham, Nathan Jay,	*Arcola,*	General, L. and A.
Hilliard, Frank Wyman,	*Brighton,*	Electrical Eng'g.
Hoff, Edna DuBois,	*Chicago Heights,*	Chemistry and Physics.
Holch, Fred Leidy,	*Gilman,*	General, L. and A.
Holcomb, Clarence Eugene,	*Milmine,*	Electrical Eng'g.
Holstman, Frederick Albert,	*Peoria,*	Civil Engineering.
Hook, Isaac Herschel,	*Vienna,*	Civil Engineering.
Horr, Ralph Ashley,	*Gibson City,*	General, L. and A.
Horr, Ray Leekley,	*Galena,*	Electrical Eng'g.
Hunt, Mabel Dorothy,	*Urbana,*	General, L. and A.
Hunter, Lum,	*Paris,*	General, L. and A.
Hyde, Sophie,	*Chicago,*	Library, L. and A.
Jackson, William Gauss,	*Vienna,*	General, L. and A.
Jacobson, Noah Henning,	*Niantic,*	General, L. and A.
James, Lee Roy,	*Beardstown,*	Mechanical Eng'g.

Jay, Harry Byron,	*Plano,*	General, L. and A.
Jeter, Roy Woods,	*Yorkville,*	Mechanical Eng'g.
Jones, Emlyn Ivor,	*Lexington,*	General, L. and A.
Jones, Mabel Agnes,	*Chicago,*	General, L. and A.
Jordan, Agnes Emma,	*Tolono,*	General, L. and A.
Kaufman, Rudolph Clinton,	*Covington, Ind.,*	General, L. and A.
Kelly, David Henry,	*El Paso, Tex.,*	Electrical Eng'g.
Keusink, Wilhelmina Minnie,	*Champaign,*	Civil Engineering.
King, Lulu Belle,	*King,*	Math. and Physics.
Kircher, Harry Bertram,	*Belleville,*	Electrical Eng'g.
Kirkpatrick, Hugh Granville,	*Virden,*	Electrical Eng'g.
Kneeland, Frank Hamilton,	*Dwight,*	Mechanical Eng'g.
Knowlton, William David,	*Onarga,*	General Science.
Koogler, Frank S.,	*Champaign,*	General, L. and A.
Kreisinger, Henry,	*Champaign,*	Mechanical Eng'g.
Kutsch, William Adelbert,	*LaSalle,*	Chemistry and Eng'g.
Larson, Lawrence Fred,	*Galva,*	General, L. and A.
Leaf, Charles Emanuel,	*Chicago,*	Chemistry.
Lease, Leonard John,	*Nokomis,*	Electrical Eng'g.
Lehner, John Conrad,	*Stockton,*	General, L. and A.
Leverton, Ernest Richard,	*Warren,*	Electrical Eng'g.
Lewis, Harry Chester,	*Mendota,*	General, L. and A.
Logeman, Albert Edwin,	*Ravenswood,*	Mechanical Eng'g.
Long, Troy Lowell,	*Morrisonville,*	General, L. and A.
Loosley, Frederick Edwin,	*Rock Island,*	Mechanical Eng'g.
Lourie, Herbert Shaw,	*Keokuk, Ia.,*	Mechanical Eng'g.
McCarthy, John James,	*Chicago,*	General, L. and A.
McCarty, John,	*Tuscola,*	Agriculture.
McClelland, Charles Thomas,	*Decatur,*	Civil Engineering.
McClelland, Robert Alexander, Jr.,	*Yorkville,*	Agriculture.
McClintock, Charles Philip,	*Philo,*	Civil Engineering.
McCullough, John Fred,	*Centralia,*	Electrical Eng'g.
McIlhenny, Mary Elizabeth,	*Macomb,*	General Science.
McKinley, George Harvey, Jr.,	*Moline,*	General, L. and A.
McKnight, William Asbury,	*Ingraham,*	General, L. and A.
McMillan, Edward Andrew,	*Biggsville,*	Municipal Eng'g.
McMillan, Neil, Jr.,	*Chicago,*	Architecture.
Mahan, Angeline Floyd,	*Lexington,*	General, L. and A.
Marquiss, Jean Roscoe,	*Monticello,*	General, L. and A.
Marriott, John Minges,	*Delaware, O.,*	Architecture.

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Marsh, Thomas Alfred,	*Loda,*	Mechanical Eng'g.
Marsh, Wallace Hickling,	*Marseilles,*	Civil Eng'g.
Martin, William George,	*Champaign,*	General, L. and A.
Maxey, Mima Agnes,	*Carlyle,*	General, L. and A.
Maxwell, Clinton Latshaw,	*Champaign,*	General, L. and A.
Mead, Clarence Eugene,	*Chillicothe,*	Electrical Eng'g.
Melby, James Alexander,	*Chicago,*	Architectural Eng'g.
Meyer, Robert Conrad,	*Gilman,*	Electrical Eng'g.
Miller, Leonard Joseph,	*Sterling,*	Mechanical Eng'g.
Mills, Floyd Earl,	*Mt. Palatine,*	Civil Eng'g.
Montgomery, Amelia,	*Quincy,*	General, L. and A.
Morgan, Stella Webster,	*Burlington, Ia.,*	General, L. and A.
Morrow, Louise,	*Rockford,*	General, L. and A.
Morse, Henry Charles,	*Chandlerville,*	Civil Engineering.
Muhl, Fred Lewis,	*Bloomington,*	Achitectural Eng'g.
Munson, Mary Franklin,	*Chicago,*	General, L. and A.
Murphey, Howard Bruce,	*Champaign,*	Civil Engineering.
Nattinger, John George,	*Ottawa,*	General, L. and A.
Nelson, Emma Ellmentina,	*Rockford,*	Household Science.
Noe, Samuel Rufus,	*Milmine,*	General, L. and A.
Norris, Burton Harry,	*Kewanee,*	Civil Engineering.
Nydegger, Adolph,	*Danville,*	Electrical Eng'g.
Odell, Arthur Buell,	*Morrison,*	Mechanical Eng'g.
Ostrander, Fred Earl,	*Galesburg,*	Civil Engineering.
Paisley, Robert Hughes,	*Irving,*	Agriculture.
Parrett, William Gaylord,	*Newport, Ind.,*	Civil Engineering.
Patterson, Maud May,	*Rochelle,*	Math. and Physics.
Penfield, Albert Charles,	*Rockford,*	Electrical Eng'g.
Perkins, Nelle,	*Vienna,*	General, L. and A.
Peterson, John Frederick,	*Kewanee,*	Civil Engineering.
Polk, John Luther,	*Champaign,*	General, L. and A.
Pope, Karl Dean,	*DuQuoin,*	Political Science.
Popejoy, Lida Elizabeth,	*Lexington,*	General, L. and A.
Post, Raebern Henry,	*Champaign,*	Electrical Eng'g.
Power, William Raymond,	*Champaign,*	Mechanical Eng'g.
Powers, George Augustus,	*Edinburg,*	General, L. and A.
Preston, Clarence Gilbert,	*Dixon,*	Electrical Eng'g.
Price, William Rabor,	*Champaign,*	Prep. to Medicine.
Putney, Nellie Ada,	*LaSalle,*	General, L. and A.
Reef, Augustus Joseph,	*Carbondale,*	Mathematics, L. and A.

Richards, Llewellyn Sylvester,	*Chicago,*	Electrical Eng'g.
Ricker, Ethel,	*Urbana,*	Architecture.
Riddle, Rollo Gaun,	*Mattoon,*	General, L. and A.
Riehl, Anna,	*Alton,*	Household Science.
Riley, George Albert,	*Lewistown,*	Electrical Eng'g.
Roberts, Edith Esther,	*Champaign,*	Library, L. and A.
Roberts, Ralph Ousley,	*Keokuk, Ia.,*	Architecture.
Rodman, Charles Scaman,	*Moweaqua,*	General, L. and A.
Rogers, Nellie,	*Covington, Ind.,*	General, L. and A.
Rohrer, Wilburn Herbert,	*Waverly,*	General, L. and A.
Rosseter, Frank Stuart,	*Austin,*	Civil Engineering.
Roulston, Robert Bennett,	*Chicago,*	Civil Engineering.
Royall, Charles Crecy,	*Clay Center, Kas.,*	General, L. and A.
Rump, Guy Henry,	*Quincy,*	Civil Engineering.
Sale, Edna Marie,	*Urbana,*	General, L. and A.
Salyers, Oswell,	*Monticello,*	General Science.
Samson, Inez Rose,	*Urbana,*	General, L. and A.
Schneck, James Arthur,	*Hot Springs, Ark.,*	General, L. and A.
Scott, Juliet Ann,	*Champaign,*	General, L. and A.
Shankland, Julia Litz,	*Des Moines, Ia.,*	Library, L. and A.
Sheldon, Edna Weaver,	*Urbana,*	General, L. and A.
Shilton, Carlyle Nance,	*Kewanee,*	Prep. to Medicine.
Sides, Aimee May,	*Champaign,*	General, L. and A.
Simpson, Carl William,	*Quincy,*	Civil Engineering.
Singbusch, Arthur Carl,	*Champaign,*	Mechanical Eng'g.
Slocum, Mary Jane,	*Loda,*	General Science.
Slocumb, Maude Stephens,	*Keithsburg,*	General Science.
Smail, Blanche Emily,	*Urbana,*	General, L. and A.
Smith, Charles Henry,	*Metamora,*	General, L. and A.
Smith, Robert Milton,	*Clinton,*	Civil Engineering.
Smith, Vincent Edmund Gillett,	*Canon City, Colo.,*	Agriculture.
Smock, Walter F,	*Decatur,*	Civil Engineering.
Sommer, Alfred,	*Chicago,*	General, L. and A.
Sommer, Clara Louise,	*Chicago,*	General, L. and A.
Sonntag, Mildred Eliza,	*Plainfield,*	General, L. and A.
Stacy, Edward Everett,	*Tuscola,*	General Science.
Staley, Isabel,	*Champaign,*	General, L. and A.
Standard, Alphonso Perry,	*Lewistown,*	Prep. to Medicine.

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Steichen, Lillian,	*Milwaukee, Wis.,*	Library, L. and A.
Stenger, John William,	*Mendota,*	Mechanical Eng'g.
Stephenson, Lewis Alva,	*Redmon,*	Mechanical Eng'g.
Stevenson, Lydia Tallman,	*Monticello,*	General, L. and A.
Stewart, Robert Jaquess,	*Urbana,*	Mechanical Eng'g.
Stipes, Opal,	*Champaign,*	General, L. and A.
Stocking, Lena Keefer,	*Morrison,*	General, L. and A.
Stockmar, Walter Max,	*Blue Island,*	Mechanical Eng'g.
Stone, Charles Newhall,	*Quincy,*	Mechanical Eng'g.
Stookey, Helen Florence,	*Harristown,*	General, L. and A.
Stookey, Marshall Childs,	*Harristown,*	Agriculture.
Stedman, Angeline Jones,	*Champaign,*	General, L. and A.
Sutherland, Walter Edmund,	*Chicago,*	General, L. and A.
Taylor, Elsie Mae,	*Hayes,*	Math. and Astronomy.
Thompson, Anton,	*Squier, N. Dak.,*	Electrical Eng'g.
Thompson, Sherman,	*Champaign,*	Architecture.
Timm, Peter Frederick William,	*Tuscola,*	Electrical Eng'g.
Tombaugh Muron Dealvo,	*Munster,*	Electrical Eng'g.
Toney, Thomas Ellsworth,	*Virden,*	Political Science.
Tonney, George Edward,	*Flora,*	Mechanical Eng'g.
Toops, Claude,	*Champaign,*	Architecture.
Trapp, William Edward,	*Lincoln,*	Agriculture.
Travis, Roy Elmer,	*Assumption,*	Civil Engineering.
Tripp, Harold Frank,	*Quincy,*	General, L. and A.
Trotter, Jessie Elizabeth,	*Champaign,*	Music.
Tubbs, James Arthur,	*Kirkwood,*	General, L. and A.
Tunnell, James Evans,	*Edwardsville,*	General, L. and A.
Turner, Charles Philip,	*Butler,*	Mechanical Eng'g.
Upton, Grace Harley,	*Rochelle,*	Library, L. and A.
Upton, Mabel E,	*Rochelle,*	Household Science.
Utt, Stella Randall,	*Virden,*	General, L. and A.
Van Deventer, Mary Ethel,	*LeRoy,*	General, L. and A.
Vanhorne, George Garret,	*Rockford,*	Electrical Eng'g.
Wade, Fred Alonzo,	*Champaign,*	Prep. to Medicine.
Walcott, Lloyd Vernon,	*Fillmore,*	General, L. and A.
Waldorf, Arthur Louis,	*Mendota,*	Civil Engineering.
Wallace, Charles Emerson,	*Chicago Heights,*	Electrical Eng'g.
Walls, Katheryne Gertrude,	*Champaign,*	Library, L. and A.
Walton, Joseph Clyde,	*Kewanee,*	Civil Engineering.
Warren, Charles Edward,	*Jerseyville,*	Civil Engineering.

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Wasson, Ora Elmer,	*Chrisman,*	Chemistry.
Watkins, Moses Adam,	*Decatur,*	Prep. to Medicine.
Wehmeier, William Henry,	*Alton,*	Electrical Eng'g.
Welles, Miriam Ursula,	*Dover,*	Prep. to Medicine.
Wells, Reginald Ellis,	*Champaign,*	Architecture.
Wheeler, Lynn Murray,	*Downers Grove,*	General, L. and A.
Wheelock, Henry Thomas,	*Moline,*	Mechanical, Eng'g.
White, Caroline Louise,	*Warrensburg,*	General, L. and A.
White, Edna Noble,	*Fairmount,*	Prep. to Medicine.
White, Leila,	*Fairmount,*	General, L. and A.
Wiley, Wallace Kenneth,	*Peoria,*	Electrical Eng'g.
Williams, Mary Edith,	*Newman,*	General, L. and A.
Willis, Edith Charlotte,	*Champaign,*	General, L. and A.
Wilson, LeRoy,	*Princeton,*	Agriculture.
Wilson, Nancy Maude,	*Guthrie,*	General, L. and A.
Wilson, William LeRoy,	*Springfield,*	Civil Engineering.
Woodworth, Metta Edna,	*Champaign,*	General, L. and A.
Worker, Joseph Garfield,	*Rock Island,*	Mechanical Eng'g.
Worrell, Joseph Carl,	*Chili,*	Civil Engineering.
Worthen, Ella Eugenia,	*Warsaw,*	General, L. and A.
Wright, Audrey Lewallyn,	*Virden,*	General, L. and A.
Wright, Clarence Bradley,	*Rockford,*	Mechanical Eng'g.
Wyle, Florence H,	*Waverly,*	Prep. to Medicine.
Yocum, Earl Layton,	*Galva,*	General, L. and A.

SPECIALS

Albrecht, Harry Woolf,	*Delavan,*	Mechanical Eng'g.
Albrecht, William Butler,	*Tiskilwa,*	Political Science.
Anders, Edwin,	*Newark,*	General Science.
Anders, Ellen Permill,	*Newark,*	Music.
Anderson, Charles Edward,	*Tiskilwa,*	Mechanical Eng'g.
Anderson, Florence Marion,	*Mahomet,*	Music.
Arnold, Forest Jackson,	*Bloomington,*	Electrical Eng'g.
Azbill, Ethel Wolcott,	*Indianapolis, Ind.,*	Library.
Bailey, Algernon Rankin,	*Rantoul,*	Civil Engineering.
Baird, William,	*Carthage,*	Art and Design.
Barlow, Lulu,	*Robinson,*	Art and Design.
Bennett, Jennie May,	*Belvidere,*	Music.
Blanchard, Bert,	*Bruce,*	Mechanical Eng'g.
Bloompot, Henry,	*Pekin,*	Civil Engineering.
Bolt, Denny,	*Vandalia,*	Civil Engineering.
Borton, Byron Sarver,	*DeLand,*	General, L. and A.

Brooks, Ernest Alfred,	*Dixon,*	Electrical Eng'g.
Buchanan, Clara Gertrude,	*Champaign,*	General, L. and A.
Caldwell, Charles McGlumphy,	*New Holland,*	General, L. and A.
Carrithers, Harry Wallace,	*Saunemin,*	Mechanical Eng'g.
Carroll, Sarah Frances,	*San Diego, Cal.,*	Art and Design.
Chester, Edith,	*Champaign,*	Art and Design.
Coffeen, Amy, B.L., 1889,	*Champaign,*	Music.
Conley, John Edward,	*Arcola,*	Civil Engineering.
Cook, Thomas L,	*Mt. Pulaski,*	General, L. and A.
Crathorne, Annie Ellen,	*Champaign,*	General, L. and A.
Craw, Nellie Edna,	*Sadorus,*	Music.
Crawford, George Barnes,	*Champaign,*	Music.
Danely, Nellie Cole, Ph.B., *(Northwestern Univ.)*, 1897,	*Champaign,*	Art and Design.
Davis, Ida Belle,	*Bondville,*	General, L. and A.
Davis, Thomas Herman,	*Urbana,*	Agriculture.
Davis, Wilmer Esla,	*Rankin,*	General Science.
Deem, Frank Emery,	*Galva,*	Music.
Derr, Harry Benjamin,	*Champaign,*	General Science.
Dick, Mary Claudine,	*Mahomet,*	Music.
Dillon, Ruth Lillian,	*Sheldon,*	General, L. and A.
Dunlap, Affa Emogene,	*Aurora,*	Music.
Dunspaugh, Mrs. Leonora,	*Buffalo, N. Y.,*	Gen., L. and A.
Ebersol, Elmer Tryon,	*Ottawa,*	General Science.
Eisner, Maurice,	*Champaign,*	General, L. and A.
Engel, Lloyd Edwin,	*Metamora,*	General, L. and A.
Flanigan, Bessie Marie,	*Champaign,*	Music.
Fleming, Marcella Augusta,	*Bement,*	Music.
Fletcher, Mary Pamela,	*Little Rock, Ark.,*	Gen., L. and A.
Forbes, Bertha VanHoesen, B.S., 1896,	*Urbana,*	Music.
Forbes, Winifred,	*Urbana,*	General, L. and A.
Foreman, Herbert Spencer,	*Whitehall,*	General Science.
Fox, Daniel Sigismund,	*Dwight,*	Civil Engineering.
Fraser, Henry Whitman,	*LaSalle,*	Mechanical Eng'g.
Fritz, Herman Henry,	*Monroeville, Ohio,*	Agriculture.
Gaddis, Zoe,	*Bondville,*	Music.
Gearhart, Orville Lee, B.S., 1897,	*Champaign,*	Chemistry.
Gere, Clara,	*Champaign,*	Music.
Gilbert, John Philo,	*Mt. Vernon,*	General Science.
Green, Clarence,	*Lawrenceville,*	General, L. and A.
Hamblen, Rosa Myrtle,	*Etna,*	General, L. and A.

Haney, Theodore Herman,	*Champaign,*	General, L. and A.
Hanson, Gertrude Lucie,	*Urbana,*	General, L. and A.
Hanson, Martin E,	*Champaign,*	Mechanical Eng'g.
Hauter, Joseph Elmer,	*Tiskilwa,*	General, L. and A.
Henion, Lora Atkins,	*Champaign,*	Music.
Henning, Bert Lawton,	*Steward,*	Electrical Eng'g.
Holder, Vernon Milner,	*Normal,*	Architectural Eng'g.
Hoop, Delpha May, B.S., *(Kansas Agrl. Coll.),* 1891,	*Manhattan, Kas.,*	Lib., L. and A.
Hosford, George Warner,	*Urbana,*	Electrical Eng'g.
Hubbard, Mae Woodworth,	*Urbana,*	Music.
Huber, Morin Emerson,	*Potomac,*	Mechanical Eng'g.
Hueffner, Arthur John,	*Virginia,*	General Science.
Hufschmidt, William Fred,	*Milwaukee, Wis.,*	Arch. Eng'g.
Hughes, Anna,	*Champaign,*	Music.
Hutsler, George Lincoln,	*Urbana,*	Architecture.
Ice, Laura Frances,	*Gifford,*	Music.
Ice, Nellie Gertrude,	*Gifford,*	Music.
Ingersoll, Frank Bruce,	*Chicago,*	Civil Engineering.
Irwin, Walter Sumner,	*Decatur,*	Art and Design.
Jayne, Violet Delille, A.M., *(Univ. of Mich.),* 1896.	*Urbana,*	Music.
Johnston, Ethel Isabel,	*Urbana,*	Music.
Jones, Lynch Terrill,	*Calhoun,*	Mechanical Eng'g.
Joy, Frederick Merrick,	*Princeton,*	Architecture
Kadel, Mike Leuroy,	*Minden, Ia.,*	Agriculture.
Keefer, Lois Bell,	*Warrensburg,*	Art and Design.
Kienzle, Edna Sophia,	*St. Joseph,*	Music.
Knapp, Noah,	*Hindboro,*	General, L. and A.
Koehn, Anna,	*Chicago,*	General, L. and A.
Kraus, William Conrad,	*Galena,*	Mechanical Eng'g.
Kuehlcke, Otto,	*Davenport, Ia.,*	Civil Engineering.
Kuehn, Alfred Leonard, B.S., 1900,	*Urbana,*	Economics.
Latzer, Alice Bertha,	*Highland,*	General Science.
Lindgren, Charles Oscar,	*Virginia*	Mechanical Eng'g.
Lindsay, Frank Merrill,	*Decatur,*	General, L. and A.
McClure, Edgar Bradfield,	*Champaign,*	General, L. and A.
McIntosh, Mabel Charlotte Urquhart,	*Champaign,*	Music.
McKelvey, James Morrison,	*Monmouth,*	Mechanical Eng'g.
Madansky, Max,	*Fairfield,*	Prep. to Medicine.

Mather, Ralph,	*Sedalia, Mo.,*	Architecture.
Mayo, Josie Abbott,	*Wyanet,*	Music.
Meikle, Mrs. Agnes,	*Pesotum,*	Music.
Meneely, Margaret,	*Champaign,*	General, L. and A.
Middleton, Anthony,	*Champaign,*	General, L. and A.
Miles, Archie L,	*Elmwood,*	Mechanical Eng'g.
Miller, Fred Charles,	*Peoria,*	Architecture.
Miller, Herbert Scholes,	*Canton,*	Architecture.
Moore, Charles Lauren,	*Champaign,*	Music.
Moore, Frank Wesley,	*Oakland,*	General, L. and A.
Moore, Lucy Kate,	*Pesotum,*	Music.
Moore, Marcellus Webster,	*Urbana,*	Music.
Moschel, Louis Conrad,	*Morton,*	General, L. and A.
Mueller, Jacob William,	*Belleville,*	Electrical Eng'g.
Mulliken, Phoebe,	*Champaign,*	Music.
Mykins, Perry H,	*Battle Creek, Mich.,*	Elec. Eng'g.
Needham, John Lowry,	*Neoga,*	Chemistry.
Neville, Mabel Maud,	*Champaign,*	Art and Design.
Noble, Ernest Henry,	*Brocton,*	General, L. and A.
Nuckolls, Minnie,	*Urbana,*	Music.
Outhouse, Fred Myrine,	*Lily Lake,*	General, L. and A.
Palmer, Mrs. Anna Shattuck, B.L., 1891,	*Urbana,*	Music.
Powell, Henry L,	*Mattoon,*	General, L. and A.
Price, N Oma,	*Hayes,*	General, L. and A.
Ragan, Carroll Stewart,	*Neoga,*	Music.
Railsback, Lee Willard,	*Hopedale,*	General, L. and A.
Ratcliff, Harry Eber,	*Vincennes, Ind.,*	Architecture.
Redding, Katherine Agnes,	*Urbana,*	Music.
Reed, Alice Elizabeth,	*Urbana,*	Art and Design.
Renner, Mrs. Ella,	*Urbana,*	Music.
Richardson, Francis Martin,	*Lincoln,*	General Science.
Round, George Arminius,	*Tampico,*	Mechanical Eng'g.
Saylor, Imogean Grace,	*Rensselaer, Ind.,*	Music.
Scheld, Amelia,	*Chicago,*	Art and Design.
Schillinger, Josephine,	*Moline,*	General, L. and A.
Schreiber, Rudolph Ernest,	*Chicago,*	General, L. and A.
Scott, Vera Charlotte,	*Mahomet,*	Music.
Shafer, Allen Andrew,	*Philo,*	General, Science.
Shinker, Lillian Ruth,	*Ludlow,*	Music.
Shoptaugh, Mary Eleanor,	*Grand View,*	General, L. and A.
Shreve, Harry Roy,	*Port Byron,*	Electrical Eng'g.

Sinclair, James Alexander,	*Kankakee,*	Mechanical Eng'g.
Sloan, Ella,	*Ivesdale,*	General, L. and A.
Smick, Mary Ella,	*Athens,*	Music.
Smith, William John,	*Urbana,*	Electrical Eng'g.
Spink, Charles Raymond,	*Davenport, Ia.,*	Architecture.
Spriggs, John,	*Louisville,*	General, L. and A.
Sutton, William D,	*Urbana,*	Art and Design.
Tackett, Dora Melissa,	*Champaign,*	Art and Design.
Thompson, Gertrude,	*Champaign,*	Music.
Tucker, Walter Clifton,	*Brimfield,*	Electrical Eng'g.
VanHoesen, Janette Cornell,	*Chicago,*	General, L. and A.
Ward, James Elmer,	*Bethany,*	General, L. and A.
Waterman, August Henry,	*Evanston,*	General, L. and A.
Webber, Sue Elizabeth,	*Urbana,*	Music.
Wells, Harry Jarvis,	*LaMoille,*	Agriculture.
White, Charles Hunter,	*Tiskilwa,*	Mechanical Eng'g.
Wilson, John Guy,	*Gays,*	General, L. and A.
Wilson, John Thomas,	*Champaign,*	General, L. and A.
Wise, Lewis W.	*Cerro Gordo,*	General Science.
Wolf, Arthur Alfred,	*Farina,*	Electrical Eng'g.
Wolford, Sadie Wicks,	*Danville,*	Art and Design.
Woods, Riley Fassett,	*LaMoille,*	Electrical Eng'g.
Wright, Ward Ellis,	*Woodstock,*	Mechanical Eng'g.
Yagle, William Frederick,	*Dundee,*	Mechanical Eng'g.
Yates, Thomas,	*Dubuque, Ia.,*	Electrical Eng'g.

SPECIALS IN COLLEGE OF AGRICULTURE, p. 286

Alford, Irving Samuel,	*Sibley.*
Ames, Harvey Nelson,	*Mattoon.*
Anderson, Hervey Henry,	*Chicago.*
Armstrong, Robert Morton,	*Milan.*
Basting, Ferdinand Joseph,	*Yuton.*
Beal, Perry Lee,	*Reed.*
Begeman, George Wesley,	*Elkhorn Grove.*
Bennett, Samuel Augustus,	*Belvidere.*
Bernhard, Susanna Sybil,	*Shumway.*
Bonnell, William Lee,	*Elondale.*
Bronson, Bertha Harriet,	*Urbana.*
Bronson, Eugene Victor,	*Urbana.*
Bushman, Virgil Earl,	*Milledgeville.*
Callaway, Leonard Wyeth,	*Tuscola.*
Camp, George Russell,	*Harristown.*

Carmichael, Berton Eugene,	*Rochelle.*
Carr, Henry Beaty,	*Lis.*
Center, Orlo Dorr,	*Grand Ridge.*
Clapp, Ivan Burr.	*Grand View.*
Clay, John Lawson,	*Galesburg.*
Coleman, Clyde Bestor,	*New Windsor.*
Constant, Harvey Nathaniel,	*Illiopolis,*
Constant, Irwin John,	*Dawson.*
Crane, Flosse Sylvia,	*Urbana.*
Creamer, William Carl,	*Tolono.*
Culver, Carl Albert,	*Athens.*
Dewey, Henry Eugene,	*Mazon.*
Dille, Charles Ernest,	*Villa Ridge.*
Duncan, Fred Thomas,	*Seaton.*
Dunlap, Nora Betz,	*Savoy.*
Eckhardt, William George,	*Buffalo Prairie.*
Endicott, Robert Burns,	*Villa Ridge.*
Ewald, John Jacob,	*Belmont.*
Fairchild, Sherman DeWitt,	*Tower Hill.*
Finley, Joseph Orton,	*Oneida.*
Flagg, David Ross,	*Clarence.*
Forsythe, John,	*Elwood.*
Fulton, Eugene,	*Gibson City.*
Gilbert, Charles Henry,	*Armstrong.*
Hartzell, John Clifford,	*Mason City.*
Hedges, Samuel Rice,	*Urbana.*
Hendrick, Lewis Carlton,	*Milledgeville.*
Hill, Arthur Howard,	*Dundee.*
Howard, Wallace Lawton,	*Sheffield.*
Howe, Ralph Barnard,	*Urbana.*
Issert, Jules Philip,	*Manteno.*
Jenkins, Elbert Arthur,	*Tower Hill.*
Jones, James Henry,	*El Dara.*
Kreiling, Christian,	*Bishop.*
Kuster, Arthur,	*Mahomet.*
Ladage, Fred William,	*Woodside.*
Large, Harry,	*Millersville.*
Lemon, Louis,	*Galesburg.*
Lindsey, Norman Wert,	*Samoth.*
Lingenfelter, Lee Everett,	*Mt. Carmel.*
Logan, Clarence Chester,	*Flora.*
McGrath, Sylvester Joseph,	*Warrensburg.*

Marsh, Ralph George,	*Huntley.*
Meier, Hermann Ernest,	*Woodworth.*
Miller, William Edward,	*Tower Hill.*
Mills, James Bagwell,	*Clay City.*
Miner, Aaron W,	*Adair.*
Mitchell, Maurice Finley,	*Oneida.*
Moffitt, Minor,	*Milan.*
Montgomery, William Henry,	*Aledo.*
Neff, Martin Luther,	*Petersburg.*
Null, Samuel Franklin,	*Blandinsville.*
Oakes, Arthur Manning,	*Metropolis.*
Perkins, Harry L Bernorn,	*Beaconsfield.*
Pittman, Elmer Deborous,	*Mahomet.*
Rankin, William Jacob Royal,	*White Heath.*
Rector, John Fred,	*Smithfield.*
Richardson, George Mayo,	*Williamsville.*
Ruffner, Lester Lee,	*Mason.*
Sanford, Wilbert Hoyt,	*Murrayville.*
Schermerhorn, May,	*Kinmundy.*
Schuppel, Henry Charles,	*Barclay.*
Scott, Gilbert Wilson,	*Franklin.*
Shaw, Guy Loren,	*Summer Hill.*
Shinn, James Rickitts,	*Mattoon.*
Southwick, Frank Eugene,	*Odell.*
Spence, William D,	*Fairbury.*
Stebbins, Roy,	*Summer Hill.*
Stitt, William Berryman,	*Berlin.*
Stitt, Harry Wiley,	*Alpha.*
Stocks, Harry Blaine,	*Eleroy.*
Taylor, Albert Berry,	*Normal.*
Temple, Ralph William,	*Elida.*
Thompson, Clarence,	*Champaign.*
Thompson, James Arthur,	*Layton.*
VanMeter, Anna Roberta	*El Paso.*
Viall, Frank Lester,	*Manteno.*
Wade, Albert Edward,	*Decatur.*
Walcher, Charles Edwin,	*Millersville.*
Warne, John Henry,	*Batavia.*
Watson, Clarence Charles,	*Woodstock.*
Wetzel, Adolph Jacob,	*Alhambra.*
White, Earle Archibald,	*Loon Lake.*
Whiteford, Milton,	*Manito.*

Williams, Gardner Rogers,	*Putnam.*
Williams, Myron Burke,	*Evanston.*
Wing, DeWitt Cosgrove,	*Boonville.*
Winter, J W,	*Wenona.*
Winterberger, Ralph,	*Junction.*
Wise, John Roy,	*Savoy.*
Wolf, Edd,	*Farina.*
Wood, Clifton Joseph,	*Friendsville.*
Worthen, Edmund Louis,	*Warsaw.*
Ziegler, Wilfred Ivanhoe,	*Clinton.*

SUMMER TERM (p. 178)

Ballard, Pearl Lena,	*Normal.*
Bassett, Herbert,	*Yorkville.*
Beinlich, Bernhard August,	*Barrington.*
Bell, Arthur Timothy,	*Azotus.*
Boyd, Edward Parkman,	*Aledo.*
Braucher, Herbert Hill, B.S., 1894,	*Lincoln.*
Breitenbach, Adolph Henry,	*Mascoutah.*
Brundage, Martin Dennan,	*Malta.*
Bruner, Francis Gilbert,	*Dwight.*
Buchanan, James William,	*Charleston, Ind.*
Burnett, Addie Elizabeth,	*Peoria.*
Caldwell, Emma,	*New Holland.*
Calhoun, Henrietta Anne,	*Champaign.*
Carr, George Russell,	*Oak Park.*
Chapin, Edward Pierce,	*Champaign.*
Chapman, Walter Joseph,	*Manchester.*
Clark, Alice Hartzel,	*Urbana.*
Clark, Lulu,	*Crossville.*
Coffman, George Benjamin,	*Chillicothe.*
Collins, Edra,	*Champaign.*
Conrad, Philip Arthur,	*Monticello.*
Craigmile, Alexander Homer,	*Gifford.*
Crossland, George Marshall,	*Sheldon.*
Crosthwait, George Ashley,	*Urbana.*
Curtiss, Albert Root,	*Champaign.*
Daugherty, Anna Elizabeth,	*Sullivan.*
Davis, Gertrude Pearl,	*Olney.*
Davis, Horatio S,	*Versailles.*
Davis, Wilmer Esta,	*Rankin.*
DeMotte, Roy James,	*Urbana.*

Draper, Edwin Lyon,	*Urbana.*
Earl, Claude Elwood,	*Centerville.*
Eckman, John Joseph,	*Wellington, Ohio.*
Eidmann, Gustav Herman,	*Mascoutah.*
Ellis, Herbert Wesley,	*Gifford.*
Fairchild, Sherman DeWitt,	*Tower Hill.*
Farrell, Mattie,	*Delavan.*
Fay, John Carl, A.B., *(Berea Coll.)*, '99,	*Champaign.*
Fitzgerald, Sadie Josephine,	*Ivesdale.*
Flynn, Mamie Agnes,	*East St. Louis.*
Fullerton, Hugh Regnier,	*Havana.*
Gallaher, Lewis Theron,	*Mt. Palatine.*
Garvin, John Brewer, B.S., 1886,	*Denver; Colo.*
Gayman, Myrtle,	*Champaign.*
Gibbs, Laura Russell,	*Champaign.*
Gilkerson, Aletha,	*Urbana.*
Gordon, Joseph Hinckley,	*Vandalia.*
Graham, David Abram,	*Illiopolis.*
Graham, James Edward,	*Illiopolis.*
Graves, Luther Glen,	*Adair.*
Grote, Mae Belle,	*East St. Louis.*
Hall, Elizabeth T, A.B., 1900,	*Urbana.*
Hall, John Calvin, A.B., 1900,	*Urbana.*
Hammers, Edna Rose,	*Champaign.*
Hammers, Jesse,	*Champaign.*
Harris, William,	*Moweaqua.*
Harrison, Maud Louise,	*Leland.*
Hartrick, Louis Eugene,	*Urbana.*
Heller, Opal, M.L., 1899,	*North Yakima, Wash.*
Hinkle, Ida May,	*Champaign.*
Hissong, John Logan,	*Urbana.*
Hord, Adeline,	*Murphysboro.*
Horn, Franklin Luther,	*Stanford.*
Horner, Harlan Hoyt,	*Cerro Gordo.*
Howell, Carrie Barnes,	*Urbana.*
Hurlbert, Flora Dorothy,	*Morrison.*
Jacobs, Manuel Joseph,	*Champaign.*
Jarvis, Mary Louise,	*East St. Louis.*
Johnson, Ananias Parnell,	*Rantoul.*
Jones, Warren,	*Whitehall.*
Keusink, Wilhelmina Minnie,	*Champaign.*
Kinzel, Josie Ethel,	*Oakland.*

Kreisinger, Henry,	*Champaign.*
Leal, Rosa Belle,	*Urbana.*
Lucas, Corda,	*Champaign.*
McCafferty, Nellie,	*Arcola.*
McGahey, Leah Catherine,	*Olney.*
McGinley, William,	*Moweaqua.*
Marion, Rose A,	*East St. Louis.*
Marker, George Edward,	*Onarga.*
Marsh, Albert LeRoy,	*Pana.*
Martin, John Madison, A.B., 1896,	*Pana.*
Meneely, Margaret,	*Champaign.*
Miller, Minnie Gertrude Josephine,	*Cairo.*
Morgan, Ora Sherman,	*Hampshire.*
Morris, Charles Myers,	*Rantoul.*
Morris, Minnie Ellen,	*Champaign.*
Myers, Jesse J,	*Green River*
Otwell, Allen Meade, B.S., 1899,	*Plainview.*
Piatt, Herman S, A.M., 1892,	*Urbana.*
Pletcher, Nuba Mitchel,	*Hoopeston.*
Power, Margaret,	*Pontiac.*
Radebaugh, John Wesley,	*Indianola, Iowa.*
Raibourn, James Edward,	*Farmer City.*
Readhimer, Jerome Edward,	*Normal.*
Reasoner, Clara Beck,	*Seymour.*
Redman, Nora Marie,	*Cairo.*
Rhoads, Ida Ruth,	*Champaign.*
Richardson, Francis Martin,	*Lincoln.*
Richardson, Robert Earl,	*Shipman.*
Robinson, Lewis Archibald, A.B., 1898,	*White Post, Va.*
Schulte, Mabel,	*Hopedale.*
Scudder, Harry Disbro,	*Chicago.*
Sloan, Ella,	*Ivesdale.*
Smail, Blanche Emily,	*Urbana.*
Stanley, Otis Orion,	*Champaign.*
Taylor, Fred Nehemiah,	*Aledo.*
Timmons, Anna M,	*Oakland.*
VanCleve, John Elbert,	*Blue Mound.*
Waldo, Marie L, B.S., 1900,	*Champaign.*
Wells, David Hopkins,	*Elwin.*
Wettengel, Henry Philip,	*Maquon.*
Woodmansee, Ralph Collum,	*Champaign.*
Wright, Gaius Emory,	*Champaign.*
York, Charles William,	*Ogden.*

SATURDAY TEACHERS' CLASS—1900-1901

Booker, Helen Ethel,	*Champaign.*
Ewalt, Grace,	*Champaign.*
Gordon, George Oscar,	*Urbana.*
Hissong, John Logan,	*Urbana.*
Rhoads, Ida Ruth,	*Urbana.*
Sparks, George,	*Urbana.*
Ware, Bertha,	*Champaign.*
White, Lena Lee,	*Urbana.*
Wilson, Lucy N.,	*Champaign.*
Wright, Gaius Emory,	*Champaign.*
Young, Harry Harrison,	*Bondville.*
Young, Pliny Morgan,	*Urbana.*

COLLEGE OF LAW

THIRD YEAR

Adsit, Bertram Wilson,	*Wellington.*
Arnold, William Wright,	*Robinson.*
Boyd, John William,	*Rantoul.*
Coffman, Henry Augustus,	*Champaign.*
Crouch, William Liebrick,	*Rozetta.*
Elder, Roy Samuel,	*Streator.*
Evans, Waldo Carl,	*Danville.*
Frahm, Hattie Belle,	*Tuscola.*
Hall, Arthur Raymond,	*East Lynn.*
Harker, George Mifflin,	*Carbondale.*
Holmes, Frank Hamilton,	*North Henderson.*
Howard, Joseph,	*Urbana.*
Humphry, Wallace George,	*Hamilton.*
Lamet, Louis Harman,	*Warsaw.*
McCartney, William Priestley, M.S., 1900,	*Urbana.*
McCollum, Harvey Darling,	*Louisville.*
Perkins, Frederic Allen,	*Canton.*
Remann, Frederick Gordon,	*Vandalia.*
Sherman, William Horace,	*Sullivan.*
Stevenson, Amos Milton,	*Ottawa.*
Thompson, George Mershon,	*Bement.*
Tunnicliffe, John James, Jr.,	*Galesburg.*

SECOND YEAR

Boggs, Harry Hurd,	*Galesburg.*
Boyer, Harry Bernard,	*Altamont.*
Cairns, David Gemmell,	*Troy Grove.*

Garrett, Richard Pratt,	*Delavan.*
Hetherington, Benjamin William,	*LaSalle.*
Hughes, Samuel Kelso,	*Champaign.*
Jones, Guy Raymond,	*Tuscola.*
Jones, Henry Leonard,	*Delavan.*
Kiler, William Henry, A.B., 1897,	*Urbana.*
Kingsbury, James Thompson, A.B., 1899,	*Pinkstaff.*
Lego, Lulu Mackintosh,	*Urbana.*
Miller, Thomas Henry,	*Macomb.*
Morrisey, Fay,	*Champaign.*
Rhoads, Horace Adams, A.B., 1899,	*Champaign.*
Sheldon, Carl Edmunds, A.B., 1899,	*Sterling.*
Siegfriedt, Thorwald Adolf Arthur,	*Davenport, Ia.*
Stern, Nathan,	*Champaign.*
Stipes, Royal Arthur,	*Champaign.*
Switzer, Robert Mortimer, A.B., *(Knox Coll.)*, 1899,	*Galesburg.*
Wyne, Ervin Evermont,	*Macomb.*

FIRST YEAR

Allen, Lawrence Thompson,	*Hoopeston.*
Barrett, Charles Vincent,	*Chicago.*
Bell, Oscar Clifford,	*Biggsville.*
Biossat, Harry Armand,	*Chicago.*
Birdzell, Luther Earle,	*Champaign.*
Casey, Charles Nicholas,	*Chicago.*
Chamberlin, Charles Cory,	*Hoopeston.*
Clifford, Wm. Edward Cassimer,	*Champaign.*
Clock, Sherwood Alonzo,	*Geneva, Ia.*
Cresap, Fred,	*Urbana.*
Davis, Horatio S,	*Versailles.*
Enochs, Delbert Riner, A.B., 1898,	*Champaign.*
Fishback, Clyde Michael,	*Olney.*
Fuller, Miles Chineweth,	*Peoria.*
Gavin, John Francis,	*Chicago.*
Graham, Hugh Joseph, A.B., 1900,	*Springfield.*
Gridley, Leslie Henry,	*Savanna.*
Grove, Rolla Burdette,	*Ottawa.*
Hancock, Howard Logan,	*Newman.*
Hauter, Andrew Edgar,	*Tiskilwa.*
Larson, Nels Alfred,	*Moline.*
McIlvaine, Brown Ervin,	*Tuscola.*
Martin, James Walter, Jr.,	*Champaign.*

Martin, James Walter, Jr.,	*Wilmington.*
Martin, Robert William,	*Wilmington.*
Mathews, Clyde Milton,	*Urbana.*
Northcott, Nathaniel Dresser,	*Greenville.*
Pettyjohn, James William,	*Farmington.*
Pollard, Charles Robert,	*Delphi, Ind.*
Poorman, Arthur Garfield,	*W. Union.*
Reniff, Ernest Chamberlain,	*Amboy.*
Robinson, James John,	*Marshall.*
Saunders, Thomas Earle,	*Ridgefarm.*
Seymour, Roy Vincent,	*Dwight.*
Shepherd, Homer,	*Lovington.*
Stahl, Garland,	*Elkhart.*
Ward, Robert Russell,	*Benton.*
Webb, Roy Dayton,	*Houston, Tex.*
Wiley, Frank Rudolph,	*Allenville.*
Williams, Walter Winslow,	*Herrin.*
Wood, Harvey Edgerton, A.B., 1900,	*Joliet.*
Woods, William Francis, A.B., 1900,	*Urbana.*
Wright, Will Clifford,	*Greenville.*

SPECIALS

Allen, John Newell,	*Hoopeston.*
Colp, Leonard Allen,	*Carterville.*
Freeman, Simeon Harrison,	*Urbana.*
Hartline, Herman Eugene,	*Anna.*
Jenkins, Charles Willard,	*Sullivan.*
Mell, John Deloss,	*San Jose.*
Monroe, Albert Folsom,	*Bloomington.*
Ogden, Charles Lewis,	*Cameron.*
Robinson, William Ross,	*Macomb.*
Stewart, William Bowen,	*Mason City.*
Stratton, Isaac Harry,	*Toulon.*
Van Devort, Paul Raymond,	*Tiskilwa.*
Wesner, William Albert,	*Richwoods.*
Wright, William Wilberforce, Jr.,	*Toulon.*

COLLEGE OF MEDICINE

(COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO)

SENIOR CLASS

Alexander, Eugene S.,	*Franklin, Ind.*
Amerson, William Henry, M.D., *(Chicago Homeopathic)*, 1890,	*Chicago.*
Ames, Andrew James,	*Minneapolis, Minn.*
Apfelbaum, David,	*Chicago.*
Baumann, F., A.M., Ph.D., *(Univ. of Konigsberg)*, 1893,	*Chicago.*
Bechtol, Charles Orville, A.B., *(Indiana Univ.)*, 1898,	*Huntington, Ind.*
Bennett, Henry Sumner.	*Moline.*
Beyer, Arthur Edwin, Ph.G., *(Northwestern Univ.)*, 1896,	*Edgewood, Ia.*
Billig, Geo. W., M.D., *(Bennett Medical Coll.)*, 1898,	*Forreston.*
Birk, John W.,	*Bucyrus, O.*
Boss, J. H.,	*Plymouth, Ind.*
Bracken, George Francis,	*Lemont.*
Bradfield, J. Harvey,	*LaHarpe.*
Buechner, Frederick E. A., Ph.G., *(Univ. of Ill.)*, 1897,	*Chicago.*
Burke, Edward Wilbur,	*Iowa Falls, Ia.*
Burt, Charles W., B.S., *(Drake Univ.)*, 1896.	*Valley Junction, Ia.*
Buss, Francis J.,	*Chicago.*
Cameron, Warren L.,	*Jacksonville, Oregon.*
Carpenter, Cora White,	*Glenwood Springs, Colo.*
Chassell, John Langdon,	*Iowa Falls, Ia.*
Church, Elmer E.,	*La Fayette.*
Clark, Leslie W.,	*Galesville, Wis.*
Conway, H. P.,	*Elroy, Wis.*
Corbett, George W., Ph.G., *(Northwestern Univ.)*, 1890,	*Plymouth, Wis.*
Corbus, B. Clarke,	*Chicago.*
Cory, Walter B.,	*Viroqua, Wis.*
Coumbe, Warner R.,	*Muscoda, Wis.*
Coy, Warren Deweese, M.D., *(Eclec. Med. Institute, Cincinnati)*, 1897,	*Canfield, O.*

Culver, Louie L., *Sandwich.*
Cunningham, William D., A.B., *(Grove City Coll.)*, 1897, *Grove City, Pa.*
Cupler, R. C., Ph.G., *(Northwestern Univ.)*, 1896, *Chicago.*
Davis, Edward Griffith, *Chicago.*
Dennert, Frank, *Dubuque, Ia.*
Denny, Alden Ray, Ph.B., *(Univ. of Iowa)*, 1898, *Burlington, Ia.*
Dethlefsen, George, *Chicago.*
Diven, George R., *Anderson, Ind.*
Dodson, Charles A., *Litchfield.*
Dohrmann, George, *Chicago.*
Domer, Walter A., B.S., *(Univ. of Wisconsin)*, 1897, *Chicago.*
Donkle, A. DeF., Ph.G., *(Univ. of Wisconsin)*, 1898, *Madison, Wis.*
Dwyer, John Condit, *Chicago.*
Eberhart, Noble M., M.S., *(Hedding Coll.)*; M.D., *(Bennett Medical Coll.)*, 1894, *Chicago.*
English, E. G., *Arcadia, Wis.*
Ewers, Joseph Bernard, *Effingham.*
Fernow, J. A. W., Ph.G., *(St. Louis Coll. of Pharmacy)*, 1883, *St. Louis, Mo.*
Frank, Mortimer, S.B., C.E., *(Mass. Inst. Tech.)*, 1897, *Chicago.*
French, G. Marion, *Danville.*
Fukola, Charles, *Vienna, Austria.*
Galloway, George, *Beaverton, Ont., Can.*
Garnett, Isabella M., *Chicago.*
Garraghan, Edward Francis, A.B., *(St. Ignatius Coll.)*, 1895, *Chicago.*
Goldblum, George Joseph, *Minneapolis, Minn.*
Goldblum, Jacob, *Minneapolis, Minn.*
Gorrell, Talbot J. H., *Chicago.*
Gould, Henrietta, *Chicago.*
Gustafson, Joseph Ansley, *Galesburg.*
Haan, George W., *Chicago.*
Hannon, Horace Blake, Ph.G., *(Univ. of South)*, 1895, *Cairo.*

Hanshus, J. William., Ph.G., *(Northwestern Univ.)*, 1897, *Chicago.*
Heilman, Ernest S., *Ida Grove, Ia.*
Heintz, Edward Louis, Ph.G., *(St. Louis Coll. of Pharmacy)*, 1898, *Ottawa, Kas.*
Henbest, George Murray, *Ft. Atkinson, Wis.*
Hess, William Clarence, *Yale, Ia.*
Hews, Lewis D., *Rockwell City, Ia.*
Hill, Emma Linton, M.D., *(Kas. Med. Coll.)*, 1895, *Oswego, Kas.*
Hoermann, Bernhard Alfred, A.B., (*Northwestern Univ.*), 1896, *Watertown, Wis.*
Hornbach, William P., *Carroll, Ia.*
Howe, Frank Stewart, B.S., *(Geneva Coll.)*, 1898, *Industry, Pa.*
Hoxsey, Robert Patton, B.S., *(Doane Coll.)*, 1893, *Chicago.*
Hubbard, Chester W., *Cedar Rapids, Ia.*
Hunt, Hiram H., *Independence, Ia.*
Irish, Henry Eugene, *Jackson, Mich.*
Jacobs, I. M., *Perth, Kas.*
Johnson, Albert C., *Horace.*
Johnson, C. C., *Wilton Junction, Ia.*
Jordan, M. S., *Grand Mound, Ia.*
Jungels, William W., *Dubuque, Ia.*
Kaeser, Albert Fred, B.S., *(Univ. of Ill.)*, 1898, *Highland.*
Kellogg, James Rossiter, *Portage, Wis.*
Kennedy, Josie C., *Rochelle.*
Kerrigan, George P., *Chicago.*
Kinder, Roscoe G. W., *Elgin.*
Kisecker, David Edgar, *Greencastle, Pa.*
Koch, Wesley A., *Pekin.*
Kubicek, Albert Charles, M.D., *(Bennett Med. Coll.)*, 1899, *Chicago.*
Lampe, Henry G., *Chicago.*
Lanting, D. B., *Drenthe, Mich.*
Lemon, Herbert K., M.D., *(Hahnemann Coll.)*, 1899, *Chicago.*
Lennon, Aloysius Joseph, *Joliet.*
Leonard, Henry Sylvester, A.B., *(Miami Univ.)*, 1898, *Liberty, Ind.*

Liggitt, Flemming L., *Chicago.*
Ling, Frank Byre, *Chicago.*
Little, Z. J., *Osage, Kas.*
Lockhart, Carl Wright, Ph.G., *(Northwestern Univ.)*, 1898, *Elo, Wis.*
Loope, Frank, *Bessemer, Mich.*
Lorch, Geo. J., Ph.G., *(Chicago Coll. of Pharmacy)*, 1895, *Independence, Wis.*
Lowenrosen, Armin, *Chicago.*
Luehrs, Henry E., *Hayton, Wis.*
McAuliffe, Andrew F., *Chicago.*
McCall, Frank B., D.V.M., *(Iowa State Vet. Coll.)*, 1893; M.D., *(Harvey Med. Coll.)*, 1900, *Chicago.*
McCall, Harry Kenyon, *Fort Dodge, Ia.*
McClellan, Clarence, D.V.S., *(Ontario Vet. Coll.)*, 1891, *Greenwood, Ind.*
McCoy, William Merrill, *Clinton, Ia.*
McDonald, Robert J., *Beaverdam, Wis.*
McDowell, W. D., B.S., *(Monmouth Coll.)*, 1886, *Monmouth.*
McDowell, William O., *Waterloo, Ia.*
McGuinn, James J., *Rock Island, Ill.*
McPherson, Warren G., *Toledo.*
Major, Will, B.S., *(Eureka Coll.)*, 1896, *Eureka.*
Martin, H. Ralph, *Bement.*
Martin, Winfred B., *Chicago.*
Maxwell, John C., *Sterling.*
Meadows, Lawrence Harland, *Waverly Junction, Ia.*
Meyer, Edward F., M.D., *(Jenner Med. Coll.)*, 1900. *Chicago.*
Morris, Robert Lyman, *Maroa.*
Morton, Frank R., *Chicago.*
Nelson, Engelbrecht, *Chicago.*
Newman, William Manning, *Albert Lea, Minn.*
Noble, Charles M., *Chicago.*
Noland, Philip D., M.D., *(Ky. School of Med.)*, 1888, *Kouts, Ind.*
Novak, Anna F., M.D., *(Bennett Med. Coll.)*, 1895, *Chicago.*
Oliver, Clifton I., *Gilbert, Ia.*
Orcutt, Dwight Chapman, *Arcola.*

Ottersbech, Carl, *Waken Ryeinland.*
Palmer, John M., *Milton, Wis.*
Parker, William R., Ph.G., *(Northwestern Univ.)*, 1889, *Dixon.*
Parry, Ivan Arthur, *Mankato, Minn.*
Petersen, Hans P. C., A.B., Ph.G., M.D., *Chicago.*
Petry, Franklin, *Beaver Dam, Ind.*
Polson, Nina D., *Laclede, Mo.*
Pratt, Irene Robinson, *Chicago.*
Rhodes, Ora M., B.S., *(Univ. of Ill.)*, 1898, *Bloomington.*
Rich, Katharine Brainerd, *Chicago.*
Ridenour, Joseph Elmer, *Garrison, Ia.*
Ringo, G. Roy, A.M., C.E., *(Univ. of Neb.)*, 1898, *Springfield, Neb.*
Robertson, W. F., *Chicago.*
Rolfs, Theodore H., *Milwaukee, Wis.*
Rowlands, Lloyd, M.D., *(Chicago Homeo. Med. Coll.)*, 1898, *Chicago.*
Ruge, Edward C., *Chicago.*
Ryon, Ralph M., *Streator.*
Sage, Edward D., *Gobleville, Mich.*
Sawyer, Francis B., M.D., *(Starling Med. Coll.)*, 1892, *Marion, O.*
Scholtes, Theodore William, *Read's Landing, Minn.*
Scofield, Charles James, *Chicago.*
Seifert, Mathias J., *Chicago.*
Severson, William Reynolds, *Kankakee.*
Sexton, Ira J., *Chicago.*
Shanks, James W., *Grand Rapids, Mich.*
Shaw, Robert H., *Lyndon.*
Sherwood, Hauphrey H., Ph.G., *(Northwestern Univ.)*, 1894, *Chicago.*
Shook, William E., *Auburn, Neb.*
Smedley, Irene, A.B., *(Central Univ., Pella, Ia.)*, *Nashua, Ia.*
Smith, James T., *Chicago.*
Smith, H. E., *Ithaca, Mich.*
Soegaard, Erik. *Christiania, Norway.*
Sommers, Julius C., *Madison, Wis.*
Steckle, Allen C., *Freeport, Mich.*
Sternberg, Walter A., *Des Moines, Ia.*
Stettauer, Joseph Lewis, *Chicago.*

Stilwill, Hiram R., M.D., *(Washington Univ., Med. Dept.).* *Tyndall, S. Dak.*
Stober, Alvin Martin, *Greene, Ia.*
Storck, William, Ph.G., *(Chicago Coll. of Pharmacy),* 1889. *Chicago.*
Streich, Edwin A., Ph.G., *(Northwestern Univ.),* 1898, *Oshkosh, Wis.*
Struthers, Herbert R., Ph.G., *(Chicago Coll. of Pharmacy),* 1893, *Chicago.*
Talmage, George G., *Brushy Prairie, Ind.*
Taylor, Lucius Lorin, *Waupun, Wis.*
Thorwick, Martha Guvine, *Chicago.*
Tillmont, C. P., *New Bremen, N. Y*
Treacy, Frederick A., *Aurora.*
Turner, Agnes, *South Bend, Ind.*
Turner, D. Ashley, *Delamar, Nev.*
Ulrich, Julius Hirsch, Ph.G., *(Pa. Coll. of Pharmacy),* 1895, *Peoria.*
Urquhart, Roy Thomas, *South Bend, Ind.*
Van Horne, James A., *Chicago.*
Vesting, Victor I., A.B., *(Augustana Coll.).* 1895, *Ludington, Mich.*
Wallace, Franklin Lamphere, *Chicago.*
Wallen, Vera W., *Chicago.*
von Wedelstaedt, Bismark, *St. Paul, Minn.*
Wells, William B., A.B., *(Milton Coll.),* 1896, *Milton, Wis.*
Wheat, Fred Caldwell, B.S., *(Cornell Coll.),* 1898, *Mt. Vernon, Ia.*
Willing, Amalie Elizabeth, *La Crosse, Wis.*
Wiltfong, Charles O., *Chicago.*
Windrow, Mrs. Anna S., *Chicago.*
Wright, Charles E., V.S., *(Ontario Veterinary of Toronto Univ.),* *Sterling.*
Yelton, Winifred A., *Yale.*
Zabokrtsky, Joseph, *Walker, Ia.*

JUNIOR CLASS

Aaron, William Hubert, *Big Neck.*
Albright, Jacob Levi, *Lena.*
Barron, Anna Esther, *Chicago.*
Bartholomew, Philip Henry, *Pittsburg, Pa.*
Bayer, William Henry, *Honey Creek, Wis.*

Beam, J. Albert, A.M., A.B., *(Univ. of Wooster)*, 1892, *Chicago.*
Beebe, Orville E., *Kankakee.*
Benedict, Charles C., *Eagle Grove, Ia.*
Bennett, Louis Jerome, *Oregon, Wis.*
Bice, Clyde William, *Perry, Ia.*
Boe, Alfred Nels, Ph.G., *(Chicago Coll. of Pharmacy)*, 1887, *Chicago.*
Borden, Frank R., Ph.G., *(Northwestern Univ.)*, 1896, *Plainfield, Wis.*
Bothne, Erling A., A.B., *(Luther Coll.)*, 1896, *Chicago.*
Breid, Jacob, A.B., *Trenton, Mo.*
Breid, Mrs. Jacob, *Trenton, Mo.*
Brown, Josiah Scott, *Chicago.*
Brown, R. E., *Washington, O.*
Brownstein, Bernard, *Chicago.*
Budan, A., *Chicago.*
Bundy, C. D., A.B., *(Ill. Wesleyan Univ.)*, 1899, *Iroquois.*
Burnham, Clarence Martin, *Watseka.*
Burns, Elizabeth V. Brothers, *Decatur, Ind.*
Burns, Floyd W., *St. Paul, Minn.*
Carr, James Gray, A.B., *(Ohio State Univ.)*, 1897, *Chicago.*
Campbell, Fredric A., *Waverly.*
Campbell, Joseph Howard, *Danville, O.*
Cain, Clark Leon, *Unity, Wis.*
Clarke, Harry P., *Cairo.*
Cleary, John H., *Kenosha, Wis.*
Clemons, E. Jay, *Aberdeen, S. Dak.*
Coates, Lintsford B., *Chicago.*
Cobb, H. A., *Ida Grove, Ia.*
Colburn, J. A., *Chicago.*
Collins, Charles D., *Milwaukee, Wis.*
Conant, Philo Bierce, *St. Joseph, Mich.*
Conitz, Leopold, *Wanatah, Ind.*
Corcoran, Edward A., *Postville, Ia.*
Cornell, J. Frank, *Logansport, Ind.*
Court, Harry M., *Buffalo, N. Dak.*
Culver, Charles Morton, *Chicago.*
Curtis, L. Frank, *Mt. Pulaski.*

Dalager, Norman O.,	*Austin, Minn.*
Davis, Charles Johnson,	*Waupaca, Wis.*
Day, Harriet March,	*Moweaqua.*
Dean, Joseph, Jr.,	*Madison, Wis.*
Dietken, Henry C.,	*Omaha, Neb.*
Dike, Charles Eugene,	*Spring Prairie, Wis.*
Dittmann, George C., Ph.G., *(Univ. of Ill.)*, 1897,	*Chicago.*
Dorn, Charles A.,	*Waterville, Minn.*
Dvorsky, B. J.,	*Chicago.*
Emerson, Arthur Veron,	*Rochester, Minn.*
Everett, Henry H.,	*Chicago.*
Faeth, Victor P.,	*Bucyrus, O.*
Farnham, Alford J.,	*Traer, Ia.*
Fisher, Evelyn Battelle, Ph.B., *(Iowa Coll.)*, 1898,	*Monroe, Ia.*
Ford, H. G.,	*Adel, Ia.*
Forkin, William P.,	*Chilton, Wis.*
Freeman, Nacoochee Augusta,	*Chicago.*
French, Wilbur Maynard,	*Lancaster, Mo.*
Fuller, Francis Elmer,	*Adrian, Mich.*
Garrett, Emmett A.,	*Peoria.*
Garrett, John D., A.B., *(Miami Univ.)*, 1898,	*Bell, O.*
Gibbs, Joseph Addison,	*Chicago.*
Glynn, Charles Edward,	*Long Grove, Ia.*
Grabow, Paul Ernest,	*Oak Park.*
Graham, Archie James,	*Gallipolis, O.*
Greene, Mary Emily,	*Charlotte, Mich.*
Groos, John O.,	*Escanaba, Mich.*
Gulick, Clyde Denney, B.S., *(Univ. of Ill.)*, 1897,	*Champaign.*
Hahn, L. A.,	*Canton.*
Hamley, E. C.,	*Chicago.*
Hammers, Lewis J.,	*Chicago.*
Harroun, William A.,	*Minneapolis, Minn.*
Harter, Virgil H.,	*Stronghurst.*
Haynes, Benjamin Hubert,	*Estherville, Ia.*
Heller, William H.,	*Marcus, Ia.*
Henderson, Maurice L.,	*Moscow, Ia.*
Herrington, Charles Warren,	*Madison, Wis.*
Hicks, J. Calvin,	*Polo.*

Holmes, Edward Marcellus,	*Chicago.*
Holmes, John Montell,	*Monticello.*
Hoopes, Fred Clifford,	*Pickrell, Neb.*
Hornibrook, Freeman H.,	*Cherokee, Ia.*
Howard, Glenn A.,	*Columbus, Wis.*
Hyde, David Lancaster,	*Chicago.*
Inks, Charles Andrew,	*Nappanee.*
Jennings, Ralph Emmitbe,	*Templeton, Ind.*
Jensen, Anton B.,	*Chilton, Wis.*
Johnson, Paul W., B.L., *(Milton Coll.)*, 1898,	*Stone Fort.*
Johnson, W. B.,	*Des Moines, Ia.*
Johnson, Wilbur V.,	*Chicago.*
Kaa, Niels A.,	*Ashkum.*
Karmmerling, George P.,	*Milwaukee, Wis.*
Kavanaugh, J. P.,	*St. Louis, Mo.*
King, Frank Aylsworth,	*Benton Harbor, Mich.*
Kirch, John P.,	*Richland Center, Wis.*
Kitterman, Fred R.	*Tiskilwa.*
Kittermann, P. G.,	*Ottumwa, Ia.*
Kittler, Walter Eugene,	*Milwaukee, Wis.*
Klehm, A. Louise,	*Chicago.*
Kleinboehl, Julius W.,	*Milwaukee, Wis.*
Klinger, Ellis G.,	*Manhattan.*
Knox, Thomas P.,	*Quincy.*
Kurtz, Fred B.,	*Princeton, Ind.*
Kyes, Sherman M.,	*Plymouth, Wis.*
Lahodney, Charles J.,	*Chicago.*
Lane, Charles Sumner,	*South Lyon, Mich.*
Larson, Carl L.,	*Chicago.*
Leavitt, Frank J.,	*Langford, S. Dak.*
Leehey, F. P.,	*Fairbank, Ia.*
Lockwood, Charles Richard,	*Kankakee.*
Lofgren, Carl A., A.B., *(Augustana Coll.)*, 1897,	*Dayton, Ia.*
Low, Lew Morgan,	*Chicago.*
Lowry, W. J.,	*Cresco, Ia.*
Lunn, Martin J.,	*Beloit, Wis.*
Lyon, George Elmer,	*Rochelle.*
McCarthy, Mrs. Katherine Winifred,	*Chicago.*
McCarty, William Thomas,	*Campbellsport, Wis.*
McConvill, Bernard J.,	*Lodi, Wis.*

McGrath, B. R., *Savanna.*
McGuire, Charles John, *Milwaukee, Wis.*
McIntyre, Arthur Cecil, *Mendota.*
McKinney, I. Newton Charles, *Camargo.*
McNeil, Benjamin F., *Ft. Dodge, Ia.*
Manning, Thomas T., *Watertown, Wis.*
Maris, Emilie R., *Duluth, Minn.*
Merki, Emil J., *Chicago.*
Meyers, Judson Melvin, *Verona, Wis.*
Miller, Charles Arthur, *Makanda.*
Miller, George L., *Champaign.*
Miller, Robert W., *Comly, O.*
Mitchell, W. Frank, B.S., *(Ottawa, Kas., Univ.)*, 1899, *Superior, Neb.*
Morris, Robert Wilson, A.B., *(Monmouth Coll.)*, 1898, *Greenwich, N. Y.*
Mueller, Armin, *Milwaukee, Wis.*
Murphy, Bernard E., *Chicago.*
Murphy, Frances T., *Chicago.*
Nadig, Anton Tony. *Rush.*
Nickelson, George A., *Corpus Christi, Tex.*
Parker, Charles Eugene, *Gilman.*
Phifer, Charles Herbert, *Shumway.*
Phillips, Floyd, *Tuscola.*
Phillips, William C., Ph.G., *(Northwestern Univ.)*, *Clarinda, Ia.*
Plice, William A., Ph.G., *(Chicago Coll. of Pharmacy)*, 1893, *Chicago.*
Podgur, Maxwell Philip, *Chicago.*
Poinier, Edwin William, *Chicago.*
Potter, Charles A., *Lafox.*
Powers, Herbert William, *Chicago.*
Richards, Henry, *Chicago.*
Rodefeld, H. H., *Quincy.*
Rosenthal, George E., *Quincy.*
Rydin, C. G., *Chicago.*
Sabin, Alexander C., *Beatrice, Neb.*
Sawtelle, Henry Fenno, *Chicago.*
Schaefer, Paul Henry, *Burlington, Ia.*
Shafer, Howard O., *Rochester, Ind.*
Shelton, R. O., *Pulaski, Ia.*
Sheller, W. O., B.S., *Ashland, O.*

Siegfriedt, John Casper Frederick,	*Davenport, Ia.*
Slater, Henry Herbert,	*Decatur.*
Sleyster, L. Rock,	*Chicago.*
Smiley, R. Borden,	*Lind, Wis.*
Smith, George W.,	*Galesburg.*
Sprecher, Samuel,	*Eureka, S. Dak.*
Standley, Kathryn Vance,	*LaClede, Mo.*
Stillman, Wayne L., D.V.S., *(Iowa State Coll.)*, 1899,	*Chicago.*
Stevens, Samuel Lorenzo,	*Bloomington.*
Strong, Charles D.,	*Paxton.*
Taylor, Charles Irwin,	*Indianola, Ia.*
Taylor, George Gordon,	*Chicago.*
Thomas, Will H.,	*Traer, Ia.*
Tolley, Elmer W., Oph.D., *(McCormick Ophthalmic Coll.)*, 1895,	*Chicago.*
Trail, Charles Jephthah,	*Independence, Ia.*
Tyvand, James C.,	*Forward, Wis.*
Venn, Walter T.,	*Aurora.*
Wachouski, John G., Ph.G., *(Northwestern Univ.)*, 1900,	*Chicago.*
Walliker, Wilbur Myron,	*Clinton, Ia.*
Walvoord, G. William,	*Cedar Grove, Wis.*
Weaver, Ben: Perley, B.S., *(Univ. of Ill.)*, 1899,	*Danville.*
Welch, Jennette C., A.B., *(Wellesley Coll.)*, 1899; Ph.D., *(Chicago Univ.)*, 1897.	*Benton Harbor, Mich.*
Werelius, Axel,	*Chicago.*
Whyte, P. D.,	*Chicago.*
Wiley, Jesse Bertram,	*Burk Grove, Ia.*
Wilson, J. M., B.L., *(Monmouth Coll.)*, 1898,	*Chicago.*
Winters, W. T.,	*Chicago.*
Yantis, D. Earl,	*Yantisville.*
Yeates, William,	*Bonfield.*
Young, C. C., Ph.G., *(Minnesota Coll. of Phar.)*, 1895,	*Bismarck, N. Dak.*
Zilisch, William E.,	*Hustisford, Wis.*
Zohrlaut, George Guido,	*Milwaukee, Wis.*

SOPHOMORE CLASS

Abercrombie, J. S., A.B., *(Yale Univ.)*, 1896,	*Rushville, Ind.*
Anderson, Emil Bernard,	*Chicago.*

Anderson, Samuel Milligan, Ph.B., *(Coll. of Emporia)*, 1900, *Wichita, Kas.*
Ash, Mary E., B.S., *(Knox Coll.)*, 1893, . *Kenton, O.*
Baird, Mary Brooks, A.B., *(Chicago Univ.)*, 1896, *Eureka, Kas.*
Balensiefer, Otto, Ph.G., *(Chicago Coll. of Pharmacy)*, 1897, *Joliet.*
Barnes, Charles E., *Chicago.*
Barnes, Thornton B., *Connellsville, Pa.*
Barnsback, J. Lester, *Edwardsville.*
Barnum, William Truman, *Adrian, Mich.*
Barricelli, Giovanni, A.B., *(St. Francis Coll.)* 1898, *Naples, Italy.*
Blough, George F., *Mongo, Ind.*
Bryan, Thomas A., *Roachdale, Ind.*
Butterfield, Edwin J., *Ankeny, Ia.*
Butterfield, Forrest R., *Chicago.*
Cody, Burtis L., *Evansville, Ind.*
Cohen, Sylvan G., *Chicago.*
Conley, Montrose, *Boone, Ia.*
Connell, William Q., *Chicago.*
Copenhaver, John H., *Bellflower.*
Cosavaw, William Francis, *Chicago.*
Clyde, Albert Eugene, *Chicago.*
Dakin, Robert G., *Melvin.*
Davison, Charles Maclay, *Delavan.*
DeNeven, Arthur V., *Green Bay, Wis.*
Dodds, David C., *Idana, Kas.*
Donkle, Lucius B., *Madison, Wis.*
Dorn, F. R., *Waterville, Minn.*
Doty, C. H., *Union, Ia.*
Dunn, Clara, *Chicago.*
Duncan, Oscar M., B.S., *(Wabash Coll.)*, 1898, *Vincennes, Ind.*
Eddy, Irving H., *Audubon, Ia.*
Eldredge, Richard L., *Chicago*
Elich, Herman, Ph.G., *(Chicago Coll. of Phar.)*, 1896, *Chicago.*
Estes, R. L., *Neoga.*
Fanyo, Fred, *Watseka.*
Ficke, Emil O., *Davenport, Ia.*
Fischer, Oscar G., *Chicago.*

Fisher, Frank C.,	*Chicago.*
Forbes, Harvey J.,	*New Hampton, Ia.*
Frechtling, Louis H. S.,	*Hamilton, O.*
Fritz, Albert L.,	*Earlham, Ia.*
Fucik, Edward J.,	*Chicago.*
Geiger, Louis H.,	*Paxton.*
Goldburger, H. E., Ph.G., *(Chicago Coll. of Phar.)*, 1890,	*Chicago.*
Gourley, Fred Lantz,	*Paxton.*
Greaves, Walter W.,	*Austin.*
Hagyard, Charlton Edward, Ph.G., *(Phar. Asso. Province of Manitoba)*, 1897,	*Winnipeg, Man.*
Hall, Milton Weston,	*Evanston.*
Harnette, Arthur Lee,	*Chicago.*
Haskell, John Eddy, A.B., *(DePauw Univ.)*,	*Green Castle, Ind.*
Havenstrite, Charles David,	*New York, N. Y.*
Hawkins, G. Merrill,	*Elkhorn Grove.*
Hays, Annie,	*Clarksville, Ark.*
Heinen, Aloys,	*Chicago.*
Hildebrandt, Fred Hubert,	*Beaver Dam, Wis.*
Hilger, Joseph M.,	*Mazeppa, Minn.*
Holmes, Philip H.,	*Chicago.*
Horan, George F.,	*Chicago.*
Horn, Archie S.,	*Pewaukee, Wis.*
Hort, W. E.,	*Galva, Ia.*
Houda, Emil O.,	*Chicago.*
Howard, Geo. H.,	*New Orleans, La.*
Howe, Lydston D.,	*Streator.*
Ingersol, Harriet T.,	*Marengo.*
Jewell, Milton Dona,	*Decorah, Ia.*
Johnson, Julius A.,	*Black River Falls, Wis.*
Johnson, L. M.,	*Annawan.*
Jones, Margaret M., B.S., *(Iowa State Coll. of Agrl.)*, 1897,	*Mason City, Ia.*
Joyce, Martin Thaddeus,	*Waterloo, Wis.*
Kavaljian, Zaroohie S.,	*Adabazar, Turkey.*
Kenny, Harry Thomas.	*Cherokee, Ia.*
King, Robert C.,	*Algona, Ia.*
Klinefelter, L. Edgar,	*Center Point, Ia.*
Kullmer, John Henry, Jr.,	*Dysart, Ia.*
Lamb, James G.,	*Voorhies.*

Landon, David Ralph, Ph.G., *(Chicago Coll. of Phar.)*, 1897, *Chicago.*
Lane, Robert M., *Danville.*
Lang, H. W., *Chicago.*
Lipman, William Henry, *Chicago.*
Long, W. Ernest, *Roodhouse.*
Loveridge, Burt Taylor, *Marcellus, Mich.*
McCarthy, Harry, *Richland Center, Wis.*
McCarty, Charles E., *Ankona, Fla.*
McGann, Michael E., *Joliet.*
Madden, William D., *Lyons, Ia.*
Maloy, Bernard S., *Englewood.*
Martin, Nancy Lee, *Monmouth.*
Mead, Nehemiah Paul, *Akron, Ia.*
Mellen, Charles S., *Chicago.*
Miller, Donald Campbell, *Viroqua, Wis.*
Moe, Ray Wallace, *Burlington, Wis.*
Molnar, Helen, *Tavornik, Moravia.*
Moore, Ernest Sisson, Ph.D., *(DePauw Univ.)*, 1892, *Chicago.*
Moore, Will H., *Chicago.*
Morgan, Charles McRae, A.B., *(Presbyterian Univ., Clarksville, Tenn.)*, *Camden, Ark.*
Mullany, T. J., *Jesup, Ia.*
Myers, Carleton Spencer, *Chicago.*
Napieralski, Emanuel F., *Chicago.*
Nowakowski, John J., *Chicago.*
Null, Marion Michael, B.S., *(Univ. of Ill.)*, 1900. *Blandinsville.*
Oberholtzer, Edward J., *Williamsfield.*
Obie, George W., *Nashville, Tenn.*
Parker, Don L., *Shelbyville.*
Parkinson, W. B., Jr., *Logan City, Utah.*
Patera, Edward, Ph.G., *(Northwestern School of Phar.)*, 1895, *Chicago.*
Phillips, Charles Eton, A.B., *(Eureka Coll.)*, 1900, *Millington.*
Pickett, Charles H., *Chicago.*
Pokorney, Frank J., Ph.G., *(Univ. of Ill.)*, 1899, *Chicago.*
Poorman, Burt Allen, *Junction City, Kas.*
Poorman, C. Wallace, *Junction City, Kas.*

Porges, Irving A., Ph.G., *(Chicago Coll. of Phar.)*, 1897, *Chicago.*
Porges, Otto, Ph.G., *(Chicago Coll. of Phar.)*, 1897, *Chicago.*
Porter, Roy S., *Moline.*
Porter, William H., *Beaulieu, N. Dak.*
Power, Lamar M., *Escanaba, Mich.*
Reese, Ernest G., Ph.C., *(Univ. of Mich.)*, 1895, *Bowling Green, O.*
Reeves, Emory W., *Plymouth, Ind.*
Rightman, Wm. M., *Chicago.*
Robbins, Emma E., *Ord, Neb.*
Rubel, Harry Francis, *LeMars, Ia.*
Sackett, L. Melville, *Parsons, Kas.*
Schroeter, Oscar V., *Chicago.*
Seelye, Norman Lee, *Lake Geneva, Wis.*
Seidel, Albert Christian William, *Quincy.*
Sepple, Edward Gerald, *Chicago.*
Shepherd, William Arthur, *Seymour, Wis.*
Sherrill, Joseph Johnston, *Union City, Tenn.*
Shoop, Arthur D., *Columbus, O.*
Sibley, Leroy, *Terre Haute, Ind.*
Sill, Earl Bly, *Marcellus, Mich.*
Silverberg, William, *Chicago.*
Smith, J. Lawrence, *Chicago.*
Stuenkel, Arthur, *Chicago.*
Sure, Julius Hilton, *Chicago.*
Swarthout, Ellis F., *Pine Island, Minn.*
Thomas, Benjamin, *Chicago.*
Thomas, Mrs. Benjamin, *Chicago.*
Thomas, Frank, Ph.G., *(Chicago Coll. of Phar.)*, 1887, *Cairo.*
Tweedall, Daniel G., *Evansville, Ind.*
Uran, Joseph A., *Kankakee.*
Urmston, Paul R., *Hamilton, O.*
Vance, Harve M., *Bement.*
Voris, Henry McMunn, *Neoga.*
Waddle, Herbert Clark, *Normal.*
Was, Francois J. T., *Chicago.*
Waufle, Guy C., *Rock Prairie, Wis.*
Weld, James Cushing, *Chicago.*
Wessels, Walter F., *Quincy.*

West, Pearl C.,	*Pleasant Hill, O.*
Wicks, Seth,	*Akron, Ind.*
Wilson, J. W.,	*Chicago.*
Wilson, L. R.,	*New Hampton, Ia.*
Winne, Charles W., Ph.C., *(Chicago Coll. of Phar.)*, 1897,	*Chicago.*
Winston, Verne E.,	*Evansville, Wis.*
Wochas, Wenzel M.,	*Stangelville, Wis.*
Wolavka, Charles W.,	*Chicago.*
Wood, James Manley,	*Chicago.*
Xellowski, Thaddeus Z., Ph.G., *(Chicago Coll. of Phar.)*, 1897,	*Chicago.*
Yates, Charles E.,	*Narka, Kas.*
Young, James A.,	*Rankin.*

FRESHMAN CLASS

Alexander, Mrs. L. F.,	*Lake Forest.*
Anderson, Emile E.,	*Paxton.*
Archer, Charles A.,	*Arkadelphia, Ark.*
Armstrong, Jay L.,	*Urbana.*
Ash, R. C.,	*Ashton, O.*
Axe, Ross H.,	*Morocco, Ind.*
Ayres, D. Francis,	*Chicago Heights.*
Bahl, William Henry,	*Moline.*
Baldwin, Harry C.,	*Palmyra, Neb.*
Barker, Clarence D.,	*Austin.*
Baumgart, Fred A.,	*Danville.*
Beck, J. B.,	*Chicago.*
Beveridge, George, A.B., *(Monmouth Coll.)*, 1899,	*Victor.*
Biesenthal, Max,	*Chicago.*
Blackmer, Loren, Jr.,	*Albert Lea, Minn.*
Blackmer, Frank J.,	*Albert Lea, Minn.*
Blumenthal, Robert Warren,	*Columbus, Wis.*
Borges, David G.,	*Chicago.*
Brown, Delmer Case, A.B., *(Toronto Univ.)*, 1898,	*Minneapolis, Minn.*
Carmack, Albert O.,	*Camargo.*
Case, Schuyler W.,	*Cherry Valley.*
Cavanaugh, Algernon J.,	*Chicago.*
Cavanaugh, H. E.,	*Eden, Wis.*
Chapman, Ira Wellington,	*New Cumberland, W.Va.*
Coffin, Charles A.,	*Adrian, Mich.*

Cole, D. T.,	*Rantoul.*
Cone, D. Edmund,	*Otsego, O.*
Curney, Frank Richard,	*Chicago.*
Dale, John R.,	*Fremont, Ia.*
Davidson, Herbert Norton.	*Wichita, Kas.*
Danek, Eric J.,	*Chicago.*
Dawes, Leonard,	*Monroe Center, Wis.*
Dickey, S. James,	*Hartstown, Pa.*
Dielman, Frank C.,	*Akron, Ind.*
Donald, Enfield J.,	*Clarinda, Ia.*
Eisendrath, Jacob Leonard,	*Chicago.*
Gailey, William Watson,	*Ashland.*
Giesen, Charles W.,	*Calmar, Ia.*
Gordon, Edmund H.,	*Chicago.*
Gotthelf, I. L.,	*Denver, Colo.*
Grace, James Henry,	*Chicago.*
Graves, S. S.,	*Chicago.*
Greaves, Joseph Ainsworth,	*Chicago.*
Gunderson, Cornelius,	*Chicago.*
Hagans, Grace Frith,	*Chicago.*
Haessly, Stephen B.,	*Herbert, Wis.*
Harrington, William Emery,	*Owatonna, Minn.*
Haslit, Parcy,	*Marshall.*
Hattery, Hellis H.,	*Waterloo, Ia.*
Hays, Frank Crawford,	*Camden.*
Heffelfinger, Miles Akin,	*Grundy Center, Ia.*
Henning, Albert Francis,	*Newell, Ia.*
Hollerich, William Edward,	*Valley.*
Hutchison, Owen Ghormley,	*Clarence.*
Jackson, Charles Augustus.	*Houston, Tex.*
Jarvis, Edward T.,	*Plymouth.*
Jones, Charles E., Ph.C., *(Chicago Coll. of Phar.)*, 1898,	*Oak Park.*
Katz, Bernard Gerson,	*Chicago.*
Kay, Milton,	*Walla Walla, Wash.*
Keepe, Frank M.,	*Clinton, Ia.*
Ketchum, Ellen Pauline,	*La Prairie.*
Kratohoil, H. H.,	*Hampton, Ia.*
Kruk, George Joseph,	*Chicago.*
Landau, Benjamin G.,	*Chicago.*
Landmann, Gustave A.,	*Scotland, S. Dak.*
Lee, Edgar,	*Chicago.*

Leviton, Solomon,	*Chicago.*
Luke, Edward,	*Danville.*
Luril, G. Adolphus,	*Chicago.*
Markley, George Washington,	*Belvidere.*
Martin, Manfred Robert,	*Weldon.*
Marvel, Luther M.,	*Waynesville.*
Mattison, Charles Wesley, B.S., *(Penn Coll., Oskaloosa)*, 1900,	*Oskaloosa, Ia.*
Merritt, Frank W.,	*Centerville, Ia.*
Miller, John M.,	*Pinckneyville.*
Monahan, James J.,	*Tomah, Wis.*
Montgomery, James R.,	*Ft. Branch, Ind.*
Montgomery, William,	*Eau Claire, Wis.*
Moore, Clara,	*Kewanee, Wis.*
Moore, George W.,	*Kewanee, Wis.*
Morrell, Joseph R.,	*Logan City, Utah.*
Morton, David Holmes,	*Elmwood.*
Mott, Kenon,	*Brunswick, Ga.*
Norton, Francis Patrick,	*Rochester, Minn.*
Oake, William T., Ph.G., *(Northwestern School of Phar.)*,	*Chicago.*
Ogasawara, Seijiro,	*Osaka, Japan.*
O'Neil, J. Howard Francis,	*Chicago.*
Raynor, M., B.S.A.,	*Rose Hall, Ontario.*
Reitman, Benjamin L.,	*Chicago.*
Replogle, Josephus Francis,	*Pontiac.*
Rosson, Zachariah Taylor,	*Jeffersonville, Ind.*
Schimelfenig, I. Clarence,	*Chicago.*
Shapiro, J. B.,	*Chicago.*
Sherlock, Margaret,	*Martinsburg, Ia.*
Simpson, W. L., B.D., *(Highland Park Coll.)*, 1900,	*Diagonal, Ia.*
Sloan, Melville H.,	*Chicago.*
Starck, Carl A.,	*Palatine.*
Stevens, Robert E.,	*Rochelle.*
Stewart, John H.,	*Exeter.*
Strayer, Lucile I.,	*Chicago.*
Spencer, William H.,	*Vinton, Ia.*
Sword, Howard Russell,	*Lanark.*
Taylor, Frank Bashford,	*Madison, Wis.*
Thomas, Edna Margaret,	*Monticello, Ia.*
Treifer, Louis Pete,	*Norway, Mich.*

Twohig, David J.,	*Armstrong, Wis.*
Van Buren, Arthur,	*Cedar Rapids, Ia.*
Vopata, William J.,	*Chicago.*
Wall, Clarence Heathcote,	*Chicago.*
Warvel, Jonas,	*Manchester, Ind.*
Weurst, Ella,	*South Bend, Ind.*
Winbigler, Brice Rex,	*Gerlaw.*
Windmueller, Charles,	*Chicago.*
Windmueller, Paul,	*Chicago.*
Wisten, Mrs. R. R.,	*Chicago.*
Wood, Frank L.,	*Superior, Wis.*
Young, William Herbert, B.S., *(Univ. of N. Dak.)*, 1899,	*Salt Lake City, Utah.*

SPECIALS AND UNCLASSIFIED

Barker, Thomas K.,	*Owensboro, Ky.*
Blake, J. M.,	*Chicago.*
Carpenter, Jessie Drew,	*Chicago.*
Glich, Orval Ewelt,	*Paris.*
Gurley, Edwin Lawrence,	*Marietta, O.*
Hampshire, G. H.,	*Chicago.*
Hosman, Willis Erwin, M.D., *(Eclectic Coll. P. and S., Indianapolis)*, 1892,	*Akron, Ind.*
Jacob, Miss A. G.,	*Chicago.*
Knauf, A. E.,	*Chicago.*
Knauf, Edward,	*Chicago.*
McDonnell, R. J. F.,	*Chicago.*
Moessner, F. R.,	*Madison, Wis.*
Osterbeek, J. F.,	*Chicago.*
Pullen, Frances R.,	*Oak Park.*
Richardson, R. L.,	*Chicago.*
Shows, J. F.,	*Tulia, Texas.*
Stanton, F. W.,	*Chicago.*
Sunde, P. H.,	*Chicago.*
Thompson, Frank Jared,	*Fargo, N. Dak.*
Wheeler, Edwin Reed,	*Sioux City, Ia.*

SCHOOL OF PHARMACY

SENIOR CLASS

Bank, Harry Lawrence Marie,	*Chicago.*
Belmore, William Thomas,	*Highwood.*
Bob, Paul William,	*Roseville.*

Bogue, Ralph Foster,	*Chicago.*
Bradley, Ira Clark,	*Coal City.*
Brenner, George Frederick,	*Fowler.*
Briggs, William Jefferson,	*Burlington, Kas.*
Clarke, Fred Blaine,	*Morris, Minn.*
Crew, James Henry,	*Minneapolis, Minn.*
Czaja, Peter,	*Chicago.*
Delbridge, Cyril John,	*Chicago.*
Dewitz, Otto John,	*Chicago.*
Downey, William,	*Wenona.*
Eagelston, Earnest Eugene,	*Castleton.*
Englert, William Robert,	*Elko, Nev.*
Everett, Edwin,	*Atkinson.*
Fernholz, Edward Nicholas,	*Jefferson, Wis.*
Fox, Guy Gore,	*Norfolk, Neb.*
George, Alexander Hamilton,	*Chicago.*
Giese, Harry William,	*Bloomington.*
Glogau, Alexander,	*Chicago.*
Gold, Morris,	*Chicago.*
Gregg, Maude Alma,	*Attica, Kas.*
Hamer, George Henry,	*Park Ridge.*
Hartig, Henry,	*Peoria.*
Hastings, Patsy Henry,	*Bailey, Ia.*
Hibbe, Harry Mathew,	*Chicago.*
Hobart, Maude Finley,	*Gilman.*
Hogan, Daniel Joseph,	*Chicago.*
Hopkins, Richard Herbert,	*Cole, Ia.*
Howk, Charles,	*Windsor.*
Hull, Harry Peck,	*Chicago.*
Ibach, Alfred Charles,	*Chicago.*
Jensen, Eli,	*Chicago.*
Karr, Robert August,	*Metropolis.*
Kokes, Anton Rudolph,	*Ord, Neb.*
Kraemer, Frank William,	*Chicago.*
Lee, John Victor,	*Evanston.*
Lyons, George Henry,	*Meadville, Pa.*
Mayo, Frederick William,	*Memphis, Tenn.*
McDougall, Joseph Donald,	*Warsaw.*
More, Laurence Francis,	*Keokuk, Ia.*
Newman, Frank Leslie,	*Chicago.*
Oliver, Richard Lisle,	*Stockton.*
Orbesen, Christ Jensen,	*Chicago.*

Parker, Charles William,	*Napoleon, Mich.*
Perry, Benjamin,	*Melvin.*
Peterson, Enoch Fred,	*Chicago.*
Phillips, William Robetoy,	*Selkirk, Ont.*
Price, Moses Reuben,	*Chicago.*
Randack, Frank Joseph,	*Chicago.*
Reichmann, Albert,	*Joliet.*
Rennen, William Anthony,	*Chicago.*
Rodenhauser, William Robert,	*Bloomington.*
Roesch, Anton,	*Waumandee, Wis.*
Salchert, Herman Anton,	*Oconto Falls, Wis.*
Samuels, John Jacob,	*Chicago*
Saxe, George,	*Albion.*
Schaefer, Walter Johann,	*New Braunfels, Tex.*
Schaffarzick, Charles Frank Ralph,	*Jefferson, Wis.*
Schmitt, Walter,	*Chicago.*
Schultz, Charles Frank,	*Neenah, Wis.*
Schulze, Arthur Henry,	*Chicago.*
Seltzer, Bert,	*Manhattan.*
Shapiro, Morris Albert,	*Chicago.*
Shaw, Vincent Howard,	*Kidder, Mo.*
Stahl, Edward Henry,	*Kansas City, Mo.*
Swan, John Clyde,	*Maywood.*
Swartz, Frank Elijah,	*Roca, Neb.*
Ullman, Chester Arthur,	*Chicago.*
Whisenant, Walter Hines, B.S., *(Univ. of Tex.,)* 1899.	*Kyle, Tex.*

JUNIOR CLASS

Bader, Henry,	*Chicago.*
Baskerville, Thomas Henry,	*Coal City.*
Beck, Fritz William,	*Chicago.*
Beckwith, George,	*LaGrange.*
Behrensmeyer, Harry Frederick,	*Quincy.*
Blumenthal, Moses,	*Dubuque, Ia.*
Bornemann, Sara Sibree,	*Oak Park.*
Bourne, Carl Ellwood,	*Clay City, Ind.*
Bourne, Earl Scott,	*Lewis, Ind.*
Bowden, Fred Leopold Treacher,	*West Pullman.*
Bowman, Charles Odus,	*Wathena, Kas.*
Bowman, Leroy Urban,	*Danville.*
Brenke, Gustav Adalbert,	*Chicago.*
Brown, Frederick Andrew,	*Chicago.*

Caldwell, Edwin Kyle,	*Chicago.*
Cholewinski, John Peter,	*Chicago.*
De Land, Harry Rollins,	*Papillion, Neb.*
Distler, Alexander Peter,	*Peoria.*
Dow, Fred Noah,	*Hudson, Mich.*
Drewitz, John William,	*LaSalle.*
Eagan, William Patrick,	*St. Edward, Neb.*
Ehlen, Henry John,	*Chicago.*
Engel, Walter Frank,	*Chicago.*
Fetherston, Joseph Robert,	*Chicago.*
Feurer, Emil John,	*LaSalle.*
Forbrich, Phillip Joseph,	*Chicago.*
Freeman, William Benjamin,	*Chicago.*
Friend, Ulysses Clarence,	*Rushville, Ind.*
Friesenecker, Charles Matthias,	*Galena.*
Gaut, Charles Pearl,	*Streator.*
Geerlings, Isaac,	*Milwaukee, Wis.*
Gibbs, Leon Elmore,	*Chicago.*
Haines, Eugene Hancock,	*Taylorville.*
Hamley, Arthur Leroy,	*Maquoketa, Ia.*
Hartline, Willis Arthur,	*Anna.*
Hatton, Henry Timothy,	*Montrose, Ia.*
Hauber, Anton Frank,	*Chicago.*
Heidbreder, Frank Herman,	*Quincy.*
Helmig, Edwin Herman,	*Peru.*
Henke, Albert Philip,	*Aurora.*
Hitchcock, John Henry,	*Lewistown.*
Houseman, Guy Weedman,	*Farmer City.*
Huwatschek, Oscar George,	*Manitowoc, Mich.*
Jerusal, Stanley James,	*Chicago.*
Jungk, Ferdinand Erwin Oscar,	*Chicago.*
Keller, Walter Valentin,	*Chicago.*
Koepke, Fritz Vollrath,	*Amboy.*
Kovnat, Alexander,	*Chicago.*
Krzywinski, Joseph,	*Chicago.*
Laufer, Ernest William David,	*Chicago.*
Lawrence, Victor Emanuel,	*Chesterton, Ind.*
Leonard, William C.,	*St. Louis, Mich.*
Lippold, Leonard Warren,	*St. Joseph, Mich.*
Lye, Edward,	*Neillsville, Wis.*
McClenahan, Carl,	*Lafayette.*
McCormick, George Allan,	*Hennepin.*

Meinung, Robert Arthur William,	*Chicago.*
Mercil, Elmer Joseph,	*Chicago.*
Mick, Carl Frederick,	*Neillsville, Wis.*
Mills, Earl C.,	*Ossian, Ia.*
Mitchell, Isaac Frederick,	*Farmer City.*
Monilaws, Stewart Alexander,	*Kincardine, Ont.*
Moyer, Harry Thomas,	*Chicago.*
Naughton, Thomas Michael,	*Chicago.*
Naviaux, Ernest Louis,	*Lexington, Neb.*
Nywall, David Alfred,	*Lindsborg, Kas.*
Ostergreen, Oscar,	*Chicago.*
Owens, Edward John,	*Denver, Colo.*
Ozanne, Philo Hoysradt,	*Tempe, Ariz.*
Pape, Hugo Aloysius,	*Evanston.*
Pedigo, Lee Murray,	*Augusta, Ga.*
Pierce, Francis Elbert,	*Wentworth, S. Dak.*
Porter, Gail Quincy,	*Deland.*
Rademacher, Charles Fred,	*Chicago.*
Ragor, Joseph Andrew,	*Chicago.*
Reibe, Charles Will,	*Chicago.*
Reid, Manus,	*Media.*
Rolff, Max Otto,	*Peoria.*
Rommel, Hans Karl Kurt,	*Chicago.*
Salisbury, Fred Henry,	*Kearney, Neb.*
Sauerberg, Einar Andre,	*Chicago.*
Schleder, Arthur Theodore,	*Lena.*
Schneider, Roy Allison,	*Peotone.*
Schnellenberger, Andrew Francis,	*Chicago.*
Simpson, Fred,	*Vienna.*
Smetana, Frank William,	*Hopkins, Minn.*
Smith, Brazill Oscar,	*Rockford.*
Snow, Clyde Mason,	*Earlville.*
Spangler, Newton Light,	*Lebanon, Pa.*
Stahlfeld, Paul George,	*Chicago.*
Stegmayer, Charles Gottlieb,	*Shelbyville.*
Stone, John Francis,	*Chicago.*
Stulik, Henry,	*Chicago.*
Sutherland, William LaRue,	*Centralia.*
Szybowicz, Leo Francis,	*South Bend, Ind.*
Thompson, Herbert Richard,	*Morristown, N. Y.*
Thorson, Gustave William,	*Chicago.*
Tiscornia, John Baptist,	*Chicago.*

Trindle, Frank James,	*Kearney, Neb*
Turnbull, Charles,	*Chicago.*
Voge, William Fred,	*Chicago.*
Von Hermann, Ferdinand Joseph,	*Chicago.*
Walker, Frederick Douglas Garnet,	*Gibbon, Neb.*
Ward, Del W.,	*Rochester, Ind.*
Warren, John Patterson,	*Dyersville, Ia.*
Welker, Charles John,	*Chicago.*
Wendt, Walter Eli,	*Mayville, Wis.*
Wheatcroft, John Christopher,	*Grayville.*
Wirth, Adolph George,	*Duluth, Minn.*
Wojtalewicz, John Benedict,	*Chicago.*
Woolfolk, John,	*Paducah, Ky.*

PREPARATORY SCHOOL

Abbott, Cary Lorin,	*Leverett.*
Abend, Hallett Edward,	*Belleville.*
Albertson, Robert Wesley,	*Pekin.*
Albrecht, Edward Unzicker,	*Tiskilwa.*
Alley, William Edwin,	*Urbana.*
Andrew, Eddy Glen,	*Oregon.*
Armstrong, Florence Azella,	*Chicago.*
Armstrong, Jessie Eva,	*Champaign.*
Armstrong, Neal Holland,	*Urbana.*
Baber, Earl Armetige,	*Sadorus.*
Bacon, Lewis Frank,	*LaPrairie.*
Baker, Walter Edward,	*Pilot.*
Ballard, John Blaine,	*New Boston.*
Bandy, Claude William,	*Danville.*
Barglebaugh, Charles Erwin,	*El Paso, Tex.*
Baum, Ethel Genevieve,	*Champaign.*
Baum, Ralph,	*Paris.*
Bean, Elsie Margaret,	*Blue Mound.*
Black, Lucian Robert,	*Purcell, Ind. Ty.*
Blair, Sara Lillian,	*Amherst, Nova Scotia.*
Bond, John Myron,	*Champaign.*
Boner, Glenna Mildred,	*El Paso.*
Boner, Halbert Evans,	*Walcott, Ind.*
Bowser, Robert Emmett,	*Bishop.*
Boyle, John Marshall,	*Roberts.*
Bradbury, William Carson,	*Decatur.*
Bradish, Horace Clark,	*Springfield.*

Bradley, Tirzah Ozilla,	*Blue Mound.*
Brant, Jessie Jennie,	*Hamilton.*
Brant, Mina Isabella,	*Hamilton.*
Brewer, Ernest Franklin,	*Farmington.*
Brown, William Edward,	*Champaign.*
Buchanan, John Lee,	*Lacon.*
Bumgarner, John Swisher,	*Magnolia.*
Burdick, Anna Lavinia,	*Assumption.*
Burrill, Irene Elsa,	*Urbana.*
Burwash, Lois Irene,	*Champaign.*
Calhoun, Helen Vera,	*Champaign.*
Campell, Homer W,	*Pecatonica.*
Campfield, William Sanford,	*Rockford.*
Cash, Paul,	*Oakland.*
Casserly, Thomas David,	*Champaign.*
Cessna, Albert Bergess,	*Hope.*
Chambers, Ralph Edward,	*Sadorus.*
Chesley, Beulah Vinton,	*Danville.*
Chesnut, Jennie Stewart,	*New Holland.*
Christiansen, John,	*Moline.*
Clark, Clinton Oliver,	*Winchester.*
Clark, Edna Hazel,	*Urbana.*
Clegg, Frank Harold,	*Pullman.*
Collins, Edra,	*Champaign.*
Conard, Sarah Orvilla,	*Monticello.*
Conklin, Alfred Oscar,	*Wichita, Kas.*
Conklin, Edward Julian,	*Wichita, Kas.*
Coons, Albert Madison,	*Loami.*
Corzine, Roy Allen,	*Stonington.*
Crawford, David Moffet,	*Urbana.*
Crawford, Frank Alexander,	*Herscher.*
Crawford, Mabel Melissa,	*Urbana.*
Cresap, Trella Jane,	*Urbana.*
Crouch, Samuel,	*Rozetta.*
Crouch, Verna Ruth,	*Rozetta.*
Cunningham, Roy Bertrum,	*Sumner.*
Dale, Ernest Arthur,	*McLeansboro.*
Davidson, Nell Jeannette,	*Mahomet.*
Davis, Mary Belma,	*Mt. Zion.*
Day, Herbert Winch,	*Rockford.*
Day, Winfield Scott,	*Roseville.*
Dean, Harry Snow,	*Tremont.*

DePuy, Orval Carl,	*Urbana.*
Dighton, John Netherton, Jr.,	*Monticello.*
Disbrow, Iva Belle,	*Huntley.*
Divan, Walter Rutledge,	*Burr Oak.*
Doran, Edwin Beale,	*Butler, Mo.*
Drury, Purne,	*New Boston.*
Dunlap, Albert Menzo,	*Savoy.*
Eichelberger, Frank,	*Lewistown.*
Elder, Ralph Maxwell,	*Hamilton.*
Elliott, Oscar Ellis,	*Fairmount.*
Ellis, Herbert Wesley,	*Gifford.*
Ely, Hamlin Mossman,	*Mazon.*
Emerson, Ralph Waldo,	*Caledonia.*
Eshbach, Warren B,	*Aledo.*
Farnsworth, George Lester,	*Ottawa.*
Ferguson, William Clarence,	*Clarinda, Ia.*
Ferry, Lee Clark,	*Warrensburg.*
Firebaugh, Charles,	*Robinson.*
Frey, Joseph Clark,	*Rock Island.*
Gallaher, George Ruffer,	*Mt. Palatine.*
Gill, Richard H,	*Pecatonica.*
Ginzel, Leo Arthur,	*Trenton.*
Goodrich, Charles Eugene,	*Belvidere.*
Gordon, Wallace Albert,	*Blue Mound.*
Green, Gella Genevieve,	*Ivesdale.*
Greene, Alice Mary,	*Urbana.*
Gregory, Ethel,	*Gibson City.*
Gregory, Hugh Monroe,	*Oakland.*
Gullick, Roy,	*Greenvillle.*
Hall, Quincy Allen,	*Milford.*
Harris, Estella,	*Modesto.*
Harris, Thomas Michael,	*Lee.*
Haubaker, Edwin Jacobs,	*Mansfield.*
Hawes, Charles Wesley, Jr.,	*Rock Island.*
Hertel, Garfield Eugene,	*Belleville.*
Hess, Harry Charles,	*Somonauk.*
Higgins, Don Nelson,	*Vienna.*
Hillman, Frank William,	*Chicago*
Hines, Elmer George,	*Huey.*
Hobart, Frank,	*McDowell.*
Holmes, John Thomas,	*Ogden.*
Hopkins, Harry Earl,	*Estelline, S. Dak.*

Hopkins, Myrtle Mina,	*Estelline, S. Dak.*
Houchin, Edson Lines,	*Cornell.*
Howard, Frederick Seymour,	*Bloomington.*
Hughes, Harold Demott,	*Antioch.*
Hughes, Smith Yale,	*Antioch.*
Janssen, Otto,	*Los Angeles, Cal.*
Jenkins, Charles E.,	*Vermont.*
Jennings, Curtiss Garfield,	*Scottland.*
Johnson, Preston King,	*Champaign.*
Jordan, Myron Kendal,	*Savoy.*
Kamm, Jacob William,	*Atwood.*
Kasper, George Wallace,	*Chicago.*
Keller, Berthold Seraphine,	*Naperville.*
Keller, Edward Hernly,	*Decatur.*
Kellogg, Howard Day,	*Peoria.*
Kelly, Elmer Lorin,	*Shumway.*
King, Harry Milton,	*Augusta.*
Klossowski, William George,	*Dixon.*
Krippner, John,	*Chicago.*
Kyte, John Felix,	*Milan.*
Lash, Raymond,	*Magnolia.*
Leonard, Herman Thomas,	*Urbana.*
Leonard, Raymond Anthony,	*Decatur.*
Little, Charles Edwin,	*Sycamore.*
Lonergan, Charles Augustus,	*Polo.*
Loomis, Foy Otto,	*Windsor.*
Lucas, John,	*Easton.*
Maas, Johann Hinrich,	*Homestead.*
McMahan, Bernard Strange,	*Crows Landing, Cal.*
McMath, Roscoe Allen,	*Gladstone.*
McMillen, Rolla Coral,	*Monticello.*
Madansky, Paul,	*Fairfield.*
Marriott, Jennie Dene,	*Urbana.*
Maut, George John,	*Pana.*
May, David Thorpe,	*Prophetstown.*
Maytag, Elmer Henry,	*Newton, Ia.*
Medill, William Anthony,	*Milan.*
Meharry, Edwin,	*Tolono.*
Meharry, George Francis,	*Tolono.*
Miller, Chester Branch,	*Seymour.*
Miner, James Howard,	*Adair.*
Morris, Sidney Dealey,	*Chicago.*

Mosiman, Levi,	*Norton.*
Moss, Haven Haanel,	*Urbana.*
Moss, Mary Francis,	*Urbana.*
Musselman, Claude,	*Danvers.*
Nickell, Lloyd Francis,	*Whiteheath.*
Nuckolls, Charles Morrison,	*Urbana.*
Ohnemus, Albert Andrew,	*Quincy.*
Paine, Mattie May,	*Rosemond.*
Parker, Calton William,	*Champaign.*
Peacock, Lottie Belle,	*Urbana.*
Peironnet, Clarence Bishop,	*Wheaton.*
Perkins, Mary Elizabeth,	*Peoria.*
Perley, Putnam Davis,	*Pecatonica.*
Peterman, Earle Dean,	*Savoy.*
Phares, Loyd Abner,	*Clinton.*
Phillips, Nelson Chancellor,	*Damascus.*
Pickle, Walter Dellavan,	*Flagg.*
Piepenbrink, Louis Henry,	*Joliet.*
Pittman, Claude Earnest,	*Mahomet.*
Pitts, Lewis Edgar,	*McLean.*
Pitts, Ralph Lowell,	*McLean.*
Porter, Edward Alexander,	*Momence.*
Powell, Clarence Griffin,	*Montezuma, Ind.*
Prettyman, William Schenck,	*Pekin.*
Raum, Wesley Sloan,	*McLeansboro.*
Ray, Harold Adair,	*Champaign.*
Ray, Howard Alden,	*Libertyville.*
Rich, Claude Winferd,	*Cobden.*
Ritter, Adah Frances,	*Tuscola.*
Ritter, Lena Beatrice,	*Villa Grove.*
Rolfe, Amy Lucile,	*Champaign.*
Rose, Cameron Alfred,	*Oak Park.*
Rose, Webster Barclay,	*Windsor.*
Ross, Robert Malcolm,	*Chicago.*
Rothgeb, Claude James,	*Milford.*
Sale, Eva Cornelia,	*Champaign.*
Schoolcraft, Laura Jane,	*North Adams, Mich.*
Schumacher, Henry Theodore,	*Toluca.*
Schwartz, Clara Elizabeth,	*Dallas City.*
Scott, Clarence George,	*Pecatonica.*
Selmer, John,	*Eau Claire, Wis.*
Shepherd, Fred Allen,	*Fairmount.*

Shoemaker, Edwin Raymond,	*McLeansboro.*
Sidenstriker, Franklin Miler,	*Newman.*
Simile, Mable Jeannette,	*Ashland.*
Smith, Edwin Raymond,	*Pilot.*
Smith, Gladys Mary,	*Mt. Zion.*
Smith, Valentine,	*Urbana.*
Spence, Minnie Bertha,	*Urbana.*
Spicer, Rawser Norman,	*Lorain.*
Stark, Edwin Frederick,	*Chicago.*
Staub, Joseph Aaron,	*Terre Haute, Ind.*
Steber, Arthur Leo,	*Chester.*
Stocker, Charles Herbert,	*Highland.*
Stockert, William Arthur,	*Pekin.*
Strubhar, Clyde Elmer,	*Washington.*
Swank, Judge Robert,	*Chrisman.*
Teufel, Louis,	*Victor, Ia.*
Thompson, James William,	*Tuscola.*
Tracey, Andrew Edward,	*Toluca.*
Trams, Albert Francis,	*Loda.*
Trevett, Bessie Harriette,	*Champaign.*
Turnbull, Guy Allen,	*Van Orin.*
Velde, John Ernest,	*Pekin.*
Vestal, Clarence LeRoy,	*Hamilton.*
Wagoner, Ed Owen,	*Elliott.*
Wedge, Jessie,	*Ipava.*
Wheeler, Edmund Burke,	*Bellflower.*
Wiley, Carroll Carson,	*Stonington.*
Williams, Paul Thorp,	*Hoopeston.*
Willson, Morris,	*New Albany, Ind.*
Wilson, Arthur John,	*Knoxville.*
Wilson, Harlan Raphael,	*Knoxville.*
Wisegarver, William Hetrick,	*Savoy.*

SPECIALS IN MUSIC

Anderson, Stella Bertha,	*Toledo.*
Bireley, Cassia Maude,	*Urbana.*
Breckenridge, Blanche Fargason,	*Urbana.*
Breckenridge, Gladys,	*Urbana.*
Busey, Mary,	*Urbana.*
Chester, Maybelle,	*Champaign.*
Claybourn, Grace Myrtle,	*Champaign.*
Collison, Inez,	*Potomac.*

Cramer, Bessie C,	*Champaign.*
Cramer, Jessie C,	*Champaign.*
Crawford, Helen,	*Champaign,*
Hanson, Mabel Irene,	*Urbana.*
Harnsberger, Bertha Sawyer,	*Champaign.*
Hosford, Pearl Wright,	*Urbana.*
Howser, Beryl,	*Urbana.*
Knowles, Gertrude,	*Moweaqua.*
Laflin, Mary Elizabeth.	*Champaign.*
Lindley, Etheldred Frank,	*Urbana.*
Lindley, Jessie Salome,	*Urbana.*
Littler, Hazel Mildred,	*Urbana.*
Lohman, Leona Alice,	*Urbana.*
Nuckolls, Mary Elizabeth,	*Urbana.*
Schulte, Loretta,	*Hopedale.*
Simcox, Minnie Thressa,	*St. Joe.*
Williams, Roy,	*Monticello.*
Young, Gracie Sadie,	*Bondville.*

SUMMARY OF STUDENTS—1900-1901.

	Men.		*Women.*		*Total.*	
GRADUATE SCHOOL		66		9		75
UNDERGRADUATE COLLEGES—						
Seniors	120		46		166	
Juniors	128		62		190	
Sophomore	138		55		193	
Freshmen	254		83		337	
Specials	96		64		160	
	——	736	——	310	——	1046
SPECIALS IN AGRICULTURE		103		6		109
SUMMER TERM		70		45		115
SATURDAY TEACHERS		6		6		12
COLLEGE OF LAW—						
Third year	21		1		22	
Second year	19		1		20	
First year	42		1		43	
Specials	14				14	
	——	96	——	3	——	99
COLLEGE OF MEDICINE—						
Seniors	170		16		186	
Juniors	178		11		189	
Sophomores	152		9		161	
Freshmen	108		9		117	
Specials	17		3		20	
	——	625	——	48	——	673
SCHOOL OF PHARMACY—						
Seniors	69		2		71	
Juniors	110		1		111	
	——	179	——	3	——	182
PREPARATORY SCHOOL		201		52		253
		2,082		482		2,564
Deduct counted twice		42		17		59
Total in University		2,040		465		2,505

DEGREES

Commencement Day, June 13, 1900, degrees were conferred as follows:

A.B.

Harriet Elizabeth Ashley.
Edith Page Bennett.
Jessie Jane Bullock.
Robert Oscar Busey.
John Kenyon Bush.
Bruce Alexander Campbell.
Clyde Capron.
George Alexander Darmer.
Frank D Francis.
Hugh Joseph Graham.
Elizabeth T Hall.
John Calvin Hall.
John Edward Hannan.
Oliver Albert Harker, Jr.,
Nancy Emma Hartrick.
David Hassleton Harts, Jr.
Zella Bernice Hayes.
Thomas Moulton Headen.
Clarence Wilbert Hughes.
George Thomas Jordan.
James Piatt Kratz.
Helen Louise McWilliams.
Lydia Maria Mather.
Fred Earle Newton.
William Gay Palmer.
Cornelius James Peeples.
Arthur Clifford Quisenberry.
Neal Daniel Reardon.
Edna Almira Rugg, A.B.
Charles A Ryburn.
Benjamin Harrison Scudder.
William Walter Smith.
George Henry Thompson.
Seth Fields VanPatten.
Harvey Edgerton Wood.
William Francis Woods.

B.S.

Bertrand Buhre Abry.
Joseph Maria Alarcó.
Jerome Gustav Appelquist.
William Jay Brown.
Eugene Irving Burke.
Elmer Burroughs.
Walter Samuel Church.
Burton Robison Corbus, M.D.
Stanislaw Dowiatt.
Clarence LeRoy Eddy.
John William Fisher.
William Grant Foster.
Harry Bert Fox.
Harry Eben Freeman.
George Gibbs, Jr.
Robert Gray.
Rachelle Margaret Hanson.
Harry Hasson.
William Albert Hawley.
Edward George Hines.
Robert Grant Holabird.
Charles Sunderland Johnson.

Arthur Russell Johnston.
Henry Ezra Keeney.
George Frank Kepler.
Asa Baird Kirkpatrick.
Benjamin Franklin Krahl.
Alfred Leonard Kuehn.
Jennie Mary Latzer.
John Oscar Laugman.
Julian Lisiecki Lee.
Charles Louis Logue.
Howard VanReed Maury.
Edwin Lyman Mayall.
Stillwell Frederick Merrill.
Marion Michael Null.
Wilkins Hoover Owens.
Robert Gerald Pettinger.
Theodore Clifford Phillips.
Earle Royal Pollard.
Ernest William Ponzer.
Chessley Justin Posey.
William Emilius Praeger.
Guy Richardson Radley.
Fred William Reimers.
Raymond Craver Ricker.
Ernest Thompson Robbins.
Lloyd Silas Robertson.
Carl John Frederick Rochow.
Martha Deette Rolfe.
Edward Brigham Safford.
Edward John Schneider.
Roy Harley Slocum.
George Russell Smith.
Harvey Allen Soverhill.
Benjamin Benton Stakemiller.
Frank Asbury Strout.
Harry Roberts Temple.
John Charles Thorpe.
Walter Simeon Tyler.
Marie L Waldo.
Otto Charles Wehrstedt.
Raymond Sly Wiley.
Clifford Willis.
George Thomas Henry Wray.

B.L.S.

Sarah Ambler, M.S.
Florence Maria Beck.
Elizabeth Branch.
Linda Marie Clatworthy.
Pauline Gunthorp, B.L.
Georgetta Haven.
Ida Louise Jackman.
Torstein Jahr, A.B.
Olive Clarice Lathrop.
Anna May Price.
Helen Louise Price.
Adele Cooper Reed.
Delia Cleora Sanford.
Ida Estelle Sawyer, Ph.B.
Minnie Earl Sears, M.S.
Blanche Seely, B.L.
Gertrude Shawhan, B.L.
Mabel Claire Shrum.
Adam Julius Strohm.
Caroline Wandell.
Willard Otis Waters, A.B.
Maybelle Gay West, B.L.
Lucy Bertha Ely Willcox.

LL.B.

Otto C Adams.
Zion Frost Baker.
George Francis Barrett.
Hobart Sherman Boyd.
Fred Worth Cooper.
William John Dolan.
Oliver Kinsey Doney.
Horace Raymond Dougherty, A.B.
William John Fulton, A.B.
Leslie Leland Glenn.

Otis Ferguson Glenn.
Harry Altman Grossberg.
Margaret Adele Ketchum.
Fred Hutchinson May.
Albert Danforth Mulliken.
Samuel Ostrowski.
Charles Churchill Pickett, A.B.
Edward Melvin Rhodes.
Arthur Roe.
Elbert Mallary Rowland.
Louis Byron Saffer.
Peter Philip Schaefer.
Charles Wesley Tooke, A.M.
John Howard Trevett.
Chester S Van Brundt.
Adolph Henry Wesemann.

A.M.

Margaret Henrietta Johanne Lampe.
Arthur Elijah Paine.
Hadley Winfield Quaintance.
Marion Emeline Sparks.
Charles Jefferson Waits.

M.L.

George Henry Campbell.

M. Arch.

Ralph Wilson Weirick.

C.E.

Milo Smith Ketchum.
Richard Bird Ketchum.

E.E.

William Frederick Schulz.

M.E.

George Alfred Goodenough.
Oscar Adolph Leutwiler.

M.S.

Fritz Conrad Koch.
John Albert Latzer.
William Priestley McCartney.
Edward Lawrence Milne.
Grace Lillian Moore.
Horace Chamberlain Porter.

At the Commencement of the School of Medicine, April 18, 1900, degrees were conferred as follows:

M.D.

Archibald John Alcorn.
Elmer K. Avery.
Margaret McConnell Babcock.
Edmund J. Ball.
Edward Francis Besser.
John Rasmussen Birkelund.
Fred Curtis Blackwelder.
Max Emanuel Bloch.
Clyde Allison Boice.
Arthur Gustavus Bosler.
Arthur Bremken.
Hadley Cyprian Brown.

Edward Lawrence Burke.
Clark Asahel Buswell, B.S.
William Wilson Cassidy.
Elwin Otis Church.
Marshall Grant Clancy.
Orson Whitney Clark.
Burton Robison Corbus.
John Francis Crowley.
John Thayer Culver, M.D.
Asa Nathan DeVault, Ph.G.
Charles Allen DeVoe.
Felix Albert Dolan.
Joseph Patrick Donovan.
Guy Grigsby Dowdall, B.L.
William Francis Dryden.
Ora Berton Dunham.
Robert Jones Dysart, A.B.
Calvin Sylvester Early, B.S., Ph.G.
Sara Thomas Elliott.
Nellie C. Flint, B.S., M.D.
George Albert Flippen.
John Peter Freeman.
Roe George Gale, M.D.
Edward Arthur Gansel.
Abel Benson George.
Clifford Freeman Gilmore, B.S.
Henry French Goodwin, A.B.
Sara Elains Greenfield, A.B.
Wendell B. Grinnell.
Louis Joseph Halloin.
Howard Brownslee Hamilton, A.B.
Wilbur S Hamilton, M.D.
Robert Roy Hampton.
Henry George Hart.
Clarence Wright Heath, B.L.
Robert Bruce Hixson.
Edward Percival Hummel.
Everett May Hurst.
Edward Everett Hyde, A.B.
Siegfried Jakubowski.
James Arthur Jennings, M.D.
Robert Moore Johnston, A.B.
Guy Henry Just.
Alonzo Blackburn Kirk.
Frederick Peter Knauf.
George John Laben, B.S.
Bernard Luehrsmann.
John William McConnell.
Olin McCormick.
Walter Robert McCray, Ph.G.
Ada Luella Malick.
Ernest Edward Martin.
Vandy Frank Masilko.
Harry Philson Mason.
John Joseph Meany.
John Earle Meloy.
Irwin Wagner Metz, A.B.
John Henry Meyhaus.
Bernard Miller.
Gustav August Miller.
William Denton Milroy, A.B.
Paul Stafford Mitchell, M.D.
William Nelson Moffett, B.S.
Gustav Herman Moldenhauer.
Richard Charles Monahan.
Lewis Moody, A.B.
Mary Emma Morgan.
Carl George Muehlmann, Ph.G.
Frank Emil Nagel.
George Frederick Niblock, A.B.
Edwin Henry Newbold, M.D.
William Jacob Nier.
Soren Svalheim Norsman.
Francis Elbert North.
Charles Homer Newell, M.D.
John Christopher O'Day.
Antonio Fredcrico Odoardo.
Claude Fenton Osborne.
Ralph Fleetwood Palmer.
William Edward Patterson.
James Mathew Phalen, Ph.G.
Dyre Henry Pelletier.

Walter Jewett Pinkerton.
Vaclav Podstata, M.D.
Ward Elverton Potter, Ph.G.
Harry Edward Purcell.
Arthur Jacob Richter.
Jesse Samuel Rinehart.
Henry Joseph Rock, B.S.
Felix Rose.
Chandler Preston Runyan.
Bayard Edward Ryder.
Frank Loring Sargeant.
Franklin Wesley Sassamann, M.D.
Robert David Scott, Ph.G.
George Lucien Sears.
Louis Delos Sheppard.
Arthur William Sieker, A.B.
Seth Marian Billings Smith.
Antone Augustus Sornsen, M.D.
Robert Thomas Spain, Ph.G.
Max Staehle.
Elmer Louis Syverson, B.L.
Roland Bert Taber, Ph.G.
Rudolph Freimuth Teschan.
James Raymond Thompson.
Samuel James Torney.
Henry Edward Twohig.
Earle Henry [illegible]
Henry Ansel V[illegible]
Charles Bernard [illegible]
Carl Voss, A.B.
Charles Delamere Wa[illegible]
John Weatherson, C.E.
Theodore Campbell West.
Joseph Emanuel Westerlund, A.B.
John West Wilson, M.D.
W. Weir Wood.
Erwin Wendell Woodford.
John Henry Xelowski, Ph.G.
Julius Rudolph Yung.
Joseph Pius Zaleski, Ph.G.

AD EUNDEM DEGREE

Dr. George F. Butler, Chicago.

HONORARY DEGREE

Dr. Victor C Vaughan, Ann Arbor, Mich.
Dr. Wm. E. Quine, Chicago.
Dr. John B. Murphy, Chicago.

At the Commencement of the School of Pharmacy, April 26, 1900, degrees were conferred as follows:

PH.G.

John William Alexander.
Almond Clifford Arnold.
Moses Barnett.
Rudolph Siegfried Boehm.
Walter Caron.
William Henry Daily.
Raymond August von Danden.
Leonard Watkins Davis.
T Guthred Drake.
Fred Henry Drallmeir.
Irving Lewis Emerson.
Arthur S. Gillette.
William Rice Graham.
Walter Holderread.
Gilbert Houseman.
Abraham Arthur Jackola.
Clarence Lorenzo James.
William Leonard Jansen.
John August Johnson.
George Arthur Kiedaisch.

Anton Kucera.
John Whitaker Lawrence.
Joseph Matthew Lestina.
George Henry Paul.
Fred Horace Priest.
William Ernest Rose.
Louis Schr[illegible]
Leo Klei[illegible]ancis C[illegible]mon.
Alfred W[illegible]yer C[illegible]amm.
George Edward Steyer.
Charlotte Elizabeth Stimson.
Alfred Reuben Utt.
Philip Darius Vincent.
Alvernon Frank Warhanik.
Charles Jeremiah Webster.
Alfred Tennyson Weible.
Walter Henry Wellman.

HOLDERS OF SCHOLARSHIPS AND COMMISSIONS

HONORARY SCHOLARSHIPS

McDonough,	Provine, Loring H.,	Macomb.
McDonough	Hampton, Ethel A.,	Macomb.

STATE SCHOLARSHIPS

Adams,	Luther, Otto L.,	Quincy.
Adams,	Stone, Charles N.,	Quincy.
Alexander,	Slocum, Mary J.,	Loda.
Bond,	Wolleson, Herbert H.,	Belleville.
Boone,	Dake, Leroy G.,	Harvard.
Bureau,	Cook, William A.,	Urbana.
Bureau,	Gillham, Philip D.,	Princeton.
Carroll,	Franks, Charles W.,	Brookville.
Champaign,	Hartrick, Louis E.,	Urbana.
Champaign,	Draper, Charlotte E.,	Urbana.
Champaign,	Chapin, Lucy,	Champaign.
Christian,	DeMotte, Ruby T.,	Urbana.
Christian,	Evans, Kenneth,	Taylorville.
Clark,	Hunter, Lum,	Paris.
Clinton,	Maxey, Mima A.,	Carlyle.
Coles,	Frost, Frank G.,	Gays.
Coles,	Taylor, Elsie M.,	Tuscola.
Cook, 1st District,	Berger, John M.,	Dolton.
Cook, 2d District,	Bushnell, George S.,	Englewood.
Cook, 3d District,	McRobie, Isabel,	Chicago.
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Cook, 5th District,	Schroeder, Curt A.,	Chicago.
Cook, 7th District,	Hoff, Edna D.,	Chicago Heights.
Cook, 11th District,	Bradshaw, Jessie I.,	Chicago.
Cook, 12th District,	Dolkart, Leo,	Chicago.
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Douglas,	Williams, Mary E.,	Newman.
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Fayette,	Cox, Claude H.,	Vandalia.
Ford,	Barr, John,	Urbana.
Fulton,	Whitehouse, Edith U.,	Canton.
Grundy,	Rose, Fred W.,	Mazon.
Hancock,	Smith, Roy,	Colusa.
Hancock,	Worrell, J. C.,	Chili.
Henderson,	McMillan, Edward A.,	Biggsville.
Iroquois,	Pletcher, Nuba M.,	Hoopeston.
Iroquois,	Meyer, Robert C.,	Gilman.
Jo Daviess,	Leverton, Ernest R.	Warren.
Kane,	Hoppin, Charles A.,	Aurora.
Kankakee,	Zartman, Lester W.,	Grant Park.
Kendall,	Bassett, Herbert,	Yorkville.
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Mason,	Crowder, Lenora E.,	Havana.

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Montgomery,	Barry, George R.,	Hillsboro.
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Ogle,	Brayton, Louis F.,	Mt. Morris.
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Ogle,	Richey, John J.,	Polo.
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Piatt,	Dawson, Charles H.,	Bement.
Piatt,	Holcomb, Clarence E.,	Milmine.
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Peoria,	Engstrom, Roy V.,	Peoria.
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Putnam,	Mills, Floyd E.,	Mt. Palatine.
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Tazewell,	Armeling, Carl E.,	Mason City.
Vermillion,	Stanley, Otis O.,	Champaign.
Vermillion,	Crosthwait, George A.,	Urbana.
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Whiteside,	Warner, Harry J.,	Prophetstown.
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Bureau,	Wilson, Leroy,	Princeton.
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Carroll,	Hendrick, Lewis C.,	Milledgeville.
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Christian,	Large, Harry	Millersville.
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Edwards,	Coons, Clarence W.,	Bloomington.
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Effingham,	Ruffner, Lester L.,	Mason.
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Jackson,	Zeigler, Wilfred I.,	Clinton.
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Battery—First Lieutenant, B. W. Hicks; First Sergeant, R. C. Matthews; Sergeants, E. B. Brittin, H. N. Baker.

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